Oceanographic Center 1983-1984 Bulletin

Nova University

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Nova University

Oceanographic Center

1983-84 Bulletin
Policies and programs set forth herein are effective through June 30, 1984. The regulations and requirements herein, including fees, are necessarily subject to change without notice at any time at the discretion of the Nova University administration.

Nova University is chartered by the State of Florida and is accredited by the Southern Association of Colleges and Schools.

Nova University admits students of any race, color, and national or ethnic origin.
Having entered its second decade, Nova University is beginning to see the impact that its graduates are having upon the institutions within our society. Many of the University's programs are mission-oriented, designed to improve the performance of professionals, and evidence is being collected which indicates that Nova alumni are having a strong, positive effect on the institutions in which they are employed.

Independent education must continue to be responsive and adaptable to the varying needs of potential students if it is to represent a true alternative to the tax-supported sector. Nova University is committed to maintaining quality at the same time it is meeting these needs.

Abraham S. Fischler
President

The growth of Nova University as a dynamic, mission-oriented educational institution has been coupled with an intensive search for strategies designed to make each of its courses of study maximally responsive to individual human needs. Hence, Nova University continues to press forward in seeking solutions to major societal problems while offering to its students many opportunities for intellectual challenge, professional preparedness and personal awareness.

Alexander Schure
Chancellor
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Founded in 1964, Nova University is an independent university which is non-sectarian, non-profit and racially non-discriminatory.

Unusual among institutions of higher education, Nova is a university for all ages. Nova College provides undergraduate education. Numerous graduate programs in a variety of fields provide master’s, doctoral, and post-doctoral education. Also, non-degree, continuing education programs are offered. The University School, a demonstration school, serves children from pre-school through seniors in high school.

Since its beginning, the university has been distinguished by its innovative outlook, its unique programs which provide non-traditional choices in educational programs, and its important research which is aimed at solutions to problems of immediate concern to mankind.

In 1970, Nova University joined in an educational consortium with the New York Institute of Technology, an independent, non-profit institution with campuses in Manhattan and Old Westbury, Suffolk County, Long Island. This mutually beneficial relationship permits each institution to draw on the personal and physical resources of the other, giving maximal benefit to the students of each and to society in general.

With students studying in Florida and in 20 states, Nova University is a university of national scope.

Accreditation Nova University is accredited by the Southern Association of Colleges and Schools.

Campus and Off-campus Locations The Nova University main campus is located on a 200-acre site west of Fort Lauderdale at 3301 College Avenue in the town of Davie, Florida. It is 10 miles inland from the Atlantic Ocean and is easily accessible from major U.S. and state highways, including I-95 and Florida’s turnpike.

The Center for the Study of Law is located at 3100 S.W. 9th Avenue in Fort Lauderdale, just north of the Fort Lauderdale-Hollywood International Airport.

Nova University at Coral Springs is located at 3501 University Drive. Degree programs, non-credit courses, and cultural events that serve the residents in north Broward County and in Palm Beach County are held in Coral Springs.

The Oceanographic Center is located on the south side of the marine entrance to Port Everglades at 8000 North Ocean Drive, Dania, Florida.

Many Nova University students attend classes on the main campus, at the Law Center or at Coral Springs. But consistent with its educational mission to provide educational opportunities to adult students wherever they may be, Nova offers degree programs and continuing education experiences at off-campus centers locally, throughout Florida, across the United States, and in foreign countries.

With the New York Institute of Technology, Nova University maintains an office in Washington, D.C. It is located at 1511 K St., N.W. Suite 624.
General Information

The Oceanographic Center pursues studies and investigations in experimental and theoretical oceanography. Studies include modeling of large scale ocean circulation, coastal dynamics, ocean-atmosphere coupling, coral growth and coral reef assessment, physiology of marine phytoplankton, calcification of invertebrates, cell ultrastructure, fouling effects, marine fisheries, lobster migration and larval recruitment. Primary regions of interest include Florida's coastal waters, the continental shelf and slope waters of the southeastern U.S., the waters of the Caribbean and Gulf of Mexico, and the equatorial Atlantic and Pacific Oceans.

DEGREES OFFERED

The Oceanographic Center offers the Ph.D. degree in oceanography and the M.S. degree in coastal studies. A proposed master of science degree program in oceanography is being considered. Fields of specialization would include physical, geological, and biological oceanography.

FACILITIES

Laboratory and Office Space. The Oceanographic Center is located on a 10-acre site in Port Everglades near the port entrance. The land was deeded to Nova University in 1967 by the Broward County Commission. Its proximity to the Gulf Stream and the Florida Straits makes it an ideal location for oceanographic research.

Located in a 20,000 sq. ft. warehouse building on the property are a machine shop, carpentry shop, darkroom, electron microscope laboratory, biological laboratory, computing center, offices, the William Springer Richardson Library, and the Institute of Coastal Studies. Additional offices and seminar rooms are located on a two-story houseboat moored in the Center's boat basin. Another building on the laboratory site provides a sea turtle incubation area, a coral workshop, and a biology laboratory. Additional facilities include a clean lab for electron microscopy preparation, chemostats, an X-ray machine, and a rock saw. A mobile classroom is used for Sea Survival classes.

Library Resources. The Center's William Springer Richardson Library contains 3,350 bound volumes (1,900 monographs and 1,400 scientific journals). The library has 102 periodicals on subscription and 26 gift periodicals. Audio-visual equipment and computer-assisted data searches are available.
The main campus of Nova University maintains two other libraries: the Behavioral Sciences Library (Einstein Library) and the Life Sciences Library (English Library). The Law Library is located at the Center for the Study of Law, at 3100 S.W. 9th Avenue, Fort Lauderdale. These libraries offer computer-assisted data searches and microfiche systems, along with an inter-library loan service that makes available copies of articles from other libraries around the country.

Computer Services. The computing facility at the Oceanographic Center consists of a Data General Nova computer with associated peripherals, including a magnetic tape unit, two disk drives, and a Calcomp drum plotter. This system functions both as a stand-alone computer with FORTRAN IV capability and as a remote batch terminal to large off-site computers. In addition, a keyboard terminal is available for telephone access to the University’s DEC Systems Twenty computer, located on the main campus.

Policies and Procedures

REQUIREMENTS FOR ADMISSION

An applicant for admission to courses of study leading to the Ph.D. degree in Oceanography must meet the following requirements.

1. A baccalaureate degree in mathematics or science, granted by an accredited institution. A master’s degree in a related science is preferred but not required. Transcripts must be provided by each college or university previously attended.

2. An academic record indicating an ability to pursue advanced study and research.

3. Three letters of recommendation from professional associates indicating a potential for research in oceanography.

4. Advanced aptitude test scores from the Graduate Record Examination (administered by the Educational Testing Service, P.O. Box 955, Princeton, N.J. 07540).

5. Foreign students must submit results of the TOEFL (Test of English as a Foreign Language) examination.

ENROLLMENT PROCEDURES

Application forms for admission may be requested from the Office of Admissions, Nova University, 3301 College Avenue, Fort Lauderdale, Florida 33314. Applications must be completed and returned to that
office along with a $25 nonrefundable application fee. Prospective students may apply at any time during the year. All correspondence pertaining to admission should be addressed to the Office of Admissions. It is the responsibility of the applicant to obtain the supporting documents requested and necessary for application.

FINANCIAL INFORMATION FOR THE PH.D. DEGREE.

<table>
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<td>Application Fee (nonrefundable)</td>
<td>$25</td>
</tr>
<tr>
<td>Tuition (per year)</td>
<td>5,000</td>
</tr>
<tr>
<td>Registration Fee (per semester)</td>
<td>15</td>
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<tr>
<td>Late Registration Fee</td>
<td>15</td>
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Books and supplies may cost an additional $500 per year, depending on individual circumstances. An average matriculation period is approximately four years.
Tuition Refund Policy. Any student in good standing wishing to withdraw because of illness or some other satisfactory reason must notify the Registrar's Office in writing. Adjustment of tuition will be computed from the date on which the written notice is received at the Registrar's Office.

1. No part of the application fee or the registration fee will be refunded upon withdrawal.

2. The refundable percentage of total tuition (paid or due) will be computed in accordance with the following schedule:
   - Prior to the first class meeting: 100%
   - Prior to the expiration of the first 14 calendar days of the semester: 80%
   - During the 15th through 21st calendar days: 60%
   - During the 22nd through 28th calendar days: 40%
   - During the 29th through 35th calendar days: 20%
   - No refunds will be payable for any withdrawals beyond the 35th calendar day.

FINANCIAL AID

Nova University operates several programs of student financial aid in order to assist as many of its students as possible in meeting the direct and indirect educational expenses. Its financial aid programs derive from federal, state, and private sources. Details of the various programs are available from the Office of Financial Aid, Nova University.

HOUSING

Located on the main campus is the Davie Living Complex, consisting of three 3-story buildings of 30 apartments each. A limited number of apartments is available each year. Apartments are leased on a yearly basis. No housing facilities are available at the Oceanographic Center site. For further descriptive information, application forms and off-campus housing information, contact the Director of Housing, Nova University, 3301 College Avenue, Fort Lauderdale, Florida 33314.

PLACEMENT SERVICE

Nova University operates a placement office for its graduates. Placement service is available as a lifelong benefit.
Current Research in Oceanography

PHYSICAL OCEANOGRAPHY

Physical oceanography is the study of the physics of the ocean. Areas of the subject that are currently being investigated at the Oceanographic Center are the following:

Surface Layer Dynamics. An important driving force for the ocean currents is the surface wind stress. A question of critical importance is exactly how this stress enters the ocean. Observations show that when the wind blows on the ocean surface, the surface waters mix to form a layer of nearly constant temperature. The development of the mixed layer is being studied analytically and with the aid of a computer model.

Equatorial Dynamics. The Equatorial Undercurrent is one of the most remarkable of ocean currents. This very swift current is about 100 miles wide, 100 meters thick, and is located about 100 meters below the ocean surface. Surprisingly, it flows in a direction opposite to that of the prevailing winds. A theoretical model has been developed that is able to explain these properties of the current.

Coastal Dynamics. Continental boundaries can have important effects on ocean currents. For example, along the western coasts of continents (like California), equatorward winds cause a slow movement of cold deeper water to the ocean surface. (This coastal upwelling is of great biological importance because it replenishes the surface waters with nutrients.) A recent theoretical model has shown that this upwelling occurs in conjunction with a poleward undercurrent. The physics of the Coastal Undercurrent is very similar to that of the Equatorial Undercurrent.

Ocean-Atmosphere Coupling; Climate. In the past fifteen years, a great deal of evidence has been accumulated suggesting that the tropical oceans may play a strong role in affecting global climate. During the next decade there will be a considerable national effort directed toward understanding the dynamics of the coupling between the atmosphere and the ocean. Several computer models of a simplified coupled ocean-atmosphere system have been developed; research is ongoing.
Current Meanders and Mesoscale Eddies. The dynamics of areas such as the Gulf Stream, Kuroshio, Antarctic Circumpolar Current and the California Current System are studied using numerical models. Satellite infrared images also are analyzed.

Physical Effects on Plankton and Fish. The distribution and evolution of phytoplankton and zooplankton in an upwelling region are being studied. Vertical and horizontal water motions are considered as important indicators of plankton evolution as it relates to fishery and pollution activities.
BIOLOGICAL OCEANOGRAPHY AND PALEOCLIMATOLOGY

Studies include work with Gulf Stream warm core rings and marine phytoplankton and aspects of their physiology. Effects of environmental factors such as temperature, photoperiod, and nutrients are being examined in the coccolithophores in collaboration with investigators at the Woods Hole Oceanographic Institution. Mechanisms of calcification in invertebrates are being examined with particular emphasis on $\text{^{18}O/^{16}O}$ fractionation in cultured coccolithophores. The ultrastructure of algae cells grown under different environmental conditions is being examined on the electron microscopic level. A consulting study is underway to determine sequences in community structure during fouling. Studies on the dynamics of dissolved carbohydrates in the sea and their relationship with the microbial plankton in local waters and the open ocean are also in progress.

RESEARCH IN MARINE BIOLOGY

Current projects include biochemical population genetics as applied to fisheries-related problems, as well as speciation and evaluation. One project involves the study of larval dispersal patterns in lobsters as mechanisms for recruitment and gene flow. Other research areas encompass metabolic responses of marine organisms to a variety of pollutants, including hydrocarbons, the build-up and movement of carcinogens in the food chain, and mariculture.

MARINE GEOLOGY

Investigations of coral growth and coral reef assessment are an interest of the current Oceanography faculty. Coral growth as measured by X-ray techniques (band analysis) is being investigated. A storage area, work space, X-ray machine, and darkroom are available for this type of study. Coral reef assessment is progressing with study in U.S. and Caribbean waters, as well as at Bermuda.
Courses of Study

The Ph.D. Degree in Oceanography. The academic program in Oceanography is tailored to address the specific needs and intellectual development of the individual student. Instruction is primarily in the tutorial mode; no structured courses exist at this time. Each student is required to complete a self-paced course of study. Frequent meetings with the faculty will be held to provide assistance in problem areas. Examinations, both oral and written, are scheduled by the student.

The student is assigned a Faculty Advisory Committee that considers the student’s competencies and prescribes a course of study for the Ph.D. degree. A minimum of one and one-half years of study, in residence at the University, must be completed prior to taking the Candidates Examination. Additional course work at a nearby university may be required in some cases, depending upon individual competencies.

Criteria For Assessment of Progress. A student is required to demonstrate competence in the ocean sciences by successfully completing the directed research program set up by the Faculty Advisory Committee. Each candidate is required to participate in one or more research projects to gain a practical background in the ocean sciences. Progress will be monitored by the Faculty Advisory Committee. Each student is expected to prepare several reports on topics of his own choosing. The reports are presented as seminars before the faculty and other interested scientists.

The Ph.D. student is expected to complete work toward the degree within five years. Upon passing the Candidates Examination, the student will submit a dissertation proposal to his Dissertation Committee. The Committee shall comprise at least four faculty members, one of whom must be on the faculty of another center at Nova University or of another university. If the proposal is approved, the student may then proceed with the research under the Committee’s guidance.
The Institute of Coastal Studies is an academic and research unit of the Oceanographic Center. The institute was established by action of the Board of Trustees in 1980. Multidisciplinary studies focus on contemporary problems and conflicts arising from increased use of coastal areas and deal specifically with “coastal affairs” as they relate to use, management, and policy affecting the living and nonliving resources found in open coastal regions, estuaries, large inland bodies of water bound by shorelines, wetlands, and other environments associated with these resources. The program places emphasis on the development and evaluation of alternative solutions to policy and management issues at the international, national, regional, and local levels.

The Institute engages in three basic activities: education, research, and public service. Faculty members, affiliates, and research associates from diverse academic fields are involved in these activities. Many professors have adjunct or affiliate appointments and are associated with other university departments, the public service sector, or private industry. Together they offer a program of studies leading to a Master of Science degree with specialization in the management of ocean and coastal resources, a professional degree for college graduates and mid-career government and industry professionals. Graduate students in other University departments may take courses in coastal studies. The Institute also has close affiliations which provide instruction in marine affairs and coastal law.

OBJECTIVES

A primary objective of the education program is to prepare the student for informed use of knowledge from allied fields which bear on the management of resources in the coastal zone. The ability to integrate knowledge from disparate fields and develop a coherent approach to problems of coastal policy is fundamental to the solution of many multifaceted problems. Students must become familiar with the disciplines necessary for coastal policy analysis in order to command the vocabulary, maintain a familiarity with technical and scholarly literature, and offer informed judgments about theoretical and applied contributions of these fields to analysis of coastal problems. Sufficient understanding of the logic, assumptions, and limitations of each particular discipline is essential to intelligent and appropriate use.
The research program of the Institute is dynamic and varied. Projects range from studies of beach erosion along Florida's Atlantic and Gulf Coasts, analysis of port and harbor development, investigation of interrelationships between soils and landforms and vegetation in subtropical wetlands, to evaluation of potential implementation of provisions of the federal Coastal Zone Management Act in Florida.

Public service efforts are an important adjunct to the Institute's overall activities. The Institute has an active program of research and advisory services to state and local agencies concerned with coastal policy and resource management.

At a time in our nation's history when ocean and coastal resources are being used at an increasing rate, when jurisdiction over fisheries has been extended to 200 miles, when exploration and exploitation of offshore energy resources have been extended to the outer limits of the Continental Shelf and when resources are being developed at an ever-increasing rate, the coastal areas need highly competent and resourceful men and women trained to pursue a more deliberate and rational approach to coastal policy, planning, and management. Program graduates should find careers in planning and management in government agencies responsible for coastal and marine affairs, in ocean-oriented industries, in private foundations, in global and regional international organizations with responsibilities in marine resource planning and management, and in teaching and research.
Each year the United States loses about 100,000 acres (40,500 hectares) of food-rich and water-purifying coastal wetlands. Of the 100,000 miles (161,000 kilometers) of the American shoreline, only 2% is in the public domain and yet 60% of the national population lives in coastal counties in twenty coastal states. The coastal zone of Florida, as defined by the Bureau of Coastal Zone Management, occupies about one-third of the state's territory and is home to 75% of the population. Use concepts differ greatly with special interest groups independently pushing for conservation, preservation, restoration, recreation, urbanization, and industrialization in the coastal corridor. Such ever-increasing demands on fragile, inter-connected coastal ecosystems must be tempered by management techniques appropriate to shoreline resources. The Institute of Coastal Studies strives to provide a rational basis for coastal managers by offering classes, lectures, seminars, and study groups that address problems critical to coastal environments. This course of study currently is being included in a larger Masters Degree Program in Ocean Science, with specialization in biological and physical oceanography.

Preparation for the Study of Coastal Science. The Institute outlines the competencies to be developed in preparation for coastal studies, but no specific fields of major study or particular courses are prescribed. The purpose is to provide the prospective coastal scientist with a sound education for the discharge of broad professional responsibilities as well as to provide a foundation for graduate school training. Because the scope of coastal studies is great and incorporates a range of reactions to natural biophysical processes and human behavior, no particular course of undergraduate study confers special advantage in coastal studies.

College curriculums differ, the content of courses bearing the same title may be dissimilar, and teaching attitudes and emphases range widely. Accordingly, suggestions are of a general nature. Courses in such fields as biology, earth science, geology, natural resources, environmental engineering, and geography help the student understand the structure and processes of natural systems and the problems of management. Studies in philosophy, literature, history, and social science may impart familiarity with concepts, paradigms, and traditions of thought that have influenced techniques of natural resource management. The examination of human behavior in courses in psychology, and of business in courses in economics, may also prove worthwhile in the analysis of human response to coastal hazards, mitigation, and port and harbor development.
In order to develop the capacities and skills which will be needed as coastal scientists, college students should pursue studies that will enhance their power to express themselves with clarity and force, both orally and in writing. English, language courses, technical report-writing courses, and public speaking (including debate) can be recommended and these capacities may be developed as well in other courses in which written work of high quality is demanded. For the systematic ordering of abstractions and ideas, the physical, natural, and mathematical sciences in addition to logic are highly useful. The study of political and social institutions can also contribute much.

Sea Oats (Uniola paniculata), a major coastal dune stabilizing plant, colonizing a prograding spit on Little Marco Island in southwest Florida. This protected plant has an extensive root system that anchors dunes.

Apart from the subject matter, students preparing for the study of coastal science should take courses of sufficient difficulty to test their capacities to the utmost and to assist in the rigorous intellectual discipline essential to success in graduate school. They would be well advised to pursue their studies far enough in some specific field to obtain a mastery of the subject, as well as gain the experience of thorough understanding. Aggressive students are more likely to extend themselves and thereby to increase their capacities for coastal studies if they follow the bent of their own interests and tastes.

What is best for a career in the marine sciences is a liberal but sound education in the physical, biological, and social sciences - a course of study that develops in students the capacity to understand, to think for themselves, and to express themselves effectively. In general, it may be said that the student who is best equipped to pursue coastal and marine science is one who possesses native intelligence, is mature, has absolute integrity, and has acquired a broad background in the sciences.
Turbidity plume (A) created by a hydraulic dredge deepening the Port Everglades turning basin to a depth of 15 meters. Suspended sediments carried by outgoing tides eventually settle over nearby fringing reefs that are already stressed by deteriorating environmental conditions.

ADMISSION REQUIREMENTS

Admission requirements for the student wishing to matriculate in coastal studies programs are listed below.

1. Applicants must have earned a baccalaureate degree from an accredited college or university; the undergraduate degree may be in any major.

2. Three letters of recommendation should be written directly to the Institute indicating the applicant’s ability to do graduate work. If the undergraduate degree was earned less than three years prior to application, at least one of the three letters must be written by a former professor or academic administrator or counselor.

3. An official transcript of the applicant’s record at each college or university attended is required. Official transcript summaries from the degree-granting institutions are also normally acceptable. Applicants with graduate work from other institutions must submit official transcripts of all such work. Transcripts or summaries should be sent directly from the degree-granting institution to the Office of the Registrar, Nova University, 3301 College Avenue, Fort Lauderdale, Florida 33314.

4. Completed application forms must be accompanied by a $25 non-refundable application fee.

5. Applicants recently graduated must demonstrate satisfactory performance on the Graduate Record Exam (GRE) administered by Educational Testing Service, P.O. Box 966, Princeton, New Jersey 08541.
Because GRE scores are weighted factors in the admissions formula used to evaluate an applicant’s potential to do quality graduate work, no specific score is set. As a general rule, GRE scores of 1000 or higher are acceptable. Applicants scoring lower than this threshold level may be required by the admissions committee to retake the GRE.

**Prerequisite Satisfaction.** Those who have not completed program prerequisites may still enter the program; however, they may not enroll for any graduate course for which they lack a specific program prerequisite. All prerequisites must be satisfied within six months of the beginning of coursework in the program.

Students have three options for satisfying a program prerequisite: (1) taking the required prerequisite course at Nova University or at another accredited college, including Nova College, the undergraduate division of Nova University; (2) successfully completing a proficiency examination administered by a testing organization that has national recognition — organizations such as CLEP, LOMA, or USAFI; or (3) taking a proficiency examination administrated directly by the Institute.

**Acceptance Procedures.** Students are admitted to the Institute under one of three classifications. First is full acceptance. This status is given upon satisfaction of all requirements for admission as stated elsewhere in this bulletin. Second is provisional (conditional) acceptance. This status is given to students who have not satisfied all of the admission requirements but have given evidence that all criteria can be met. Third is special student acceptance. This status is reserved for non-degree seeking students. While this may be a preliminary status to full acceptance, enrollment in and satisfactory completion of courses do not guarantee admission to any program.

Students will be notified in writing of the status under which they may enroll in classes. Upon completion of all requirements, which must be achieved within six months, notification of full acceptance will be given in writing.

**International Students.** In addition to the foregoing procedures, international students must also submit a TOEFL score of 500 or higher and be evaluated by the bilingual program as having a Level 4 proficiency. The student VISA (I-20) 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 the procedures of obtaining a student visa, please contact the office of the registrar.
STUDY FORMAT

The Institute Master's calendar (see Academic calendars) operates year-round, and the average student enrolls for two formal lecture courses a term. Each term runs for approximately three months (see Master's calendar). All core courses represent three semester hours of graduate credit. Thus, the student is able to complete 24 credits of study per year by attending four terms. The average student is able to complete all course requirements in about one year plus one term.

Master's candidates pursuing the coastal resources management option in the Institute of Coastal Studies must successfully complete 10 core courses (30 credit-hours) in addition to 6 hours of thesis credit.

Core courses follow a structured format with formal lectures and supervised field excursions. Term papers, lab reports, and oral presentations are normally required. Thesis credit (CZM 681, CZM 682, and CZM 683) is offered on a tutorial basis. Regular meetings with the thesis mentor and other committee members are encouraged. M.S. thesis committees are normally composed of three faculty members. One member of the committee may be on the regular faculty of another university or from private industry or public service, provided the member has at least a master's degree in a pertinent field from an accredited institution. Grades for thesis registration are designated pass (P) or fail (F).

Up to two core courses may be waived provided the student can demonstrate competency in the subject area. Courses for which substitution is desired must be at the graduate level and cover the same general area of inquiry. Students applying for exemption must have maintained at least a 3.0 G.P.A. (4.0 scale) and received a grade of A or B for the course in question.

Electives are offered on a tutorial or practicum basis. Registration for directed readings and library, laboratory, and field research topics follows the Institute's academic calendar. Students are encouraged to take elective courses related to their specialized interests. Although the electives are geared for independent study and advancement at the individual's own pace, a candidate must meet certain minimum requirements instituted by the instructor. A term paper or examination is normally required for electives.
CONVOCATIONS

In an effort to develop professional competence, students are given an opportunity to demonstrate their willingness to serve their profession and the public with needed up-to-date information and techniques. The convocation program encourages students to take the initiative in maintaining professionalism through self-development activities. To accommodate the wide diversity of academic-training backgrounds, a point system has been established to be completed over the course of candidacy. A minimum of thirty (30) hours is required for graduation. Convocation credits, for which there is no charge, may be accumulated by attending seminars, participating in meetings, book or film editing or publication, presenting papers, and other activities. Further information is available from the Program Office.

Academic Standing. A student may be asked to leave the Institute if, in the judgment of the program administrator, continuance would be detrimental to the student or the Institute. 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 G.P.A. 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 readmission 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. When submitting written work, students are required to sign a statement verifying the authenticity of authorship.

The Certification Statement must appear in term papers, technical reports, field notes, maps, and other written communications. This statement must immediately follow the title page and should read as follows:
I hereby certify that this paper constitutes my own work; that where the language of another is set forth, quotation marks so indicate; and that appropriate credit is given where I have used the language, ideas, expressions, or writing of another.

Signature
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 the grade point average.

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

**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.

Veterans who receive educational benefits must do satisfactory work and their attendance must conform to the minimum absentee rules. A violation of either requirement must be reported to veterans authorities, and benefits will be withdrawn.

**Examinations.** Final written examinations are required in coastal studies courses. Exceptions may be made in seminars and other courses for which research papers are required. Usually the final examination or total accumulated points determine the grade for a course. However, the instructor may indicate otherwise. Examination books are identified by Social Security number rather than by name.

A student failing to take the final examination in any course must notify the Director's Office as soon as circumstances permit. 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.

The following system is used to grade academic performance:

- A Excellent, B Satisfactory, C Marginal Pass, D Poor/Marginal F Failure.
- W Withdrawal—After the third class weekend or termination by the instructor for non-completion of the course by the student.
- I Incomplete—Given when most (80%) but not all course work has been completed. Must be requested from the instructor and have the Director's approval.
- Au—Audit
- P—Pass
- PR—Progress (i.e., Dissertation in Progress)
Incomplete Grade Make-Up. Students who receive a course grade of I (Incomplete) have two terms or six months in which to make up the Incomplete. There is a charge of ten dollars (\$10) to process the grade change from I to the grade earned. This charge will automatically be posted to the student's financial records in the comptroller's office. At the end of the six months following the receipt of an Incomplete, the I becomes a course grade of IW (Incomplete Withdrawal). Students can then receive credit for the course only by retaking it at full tuition charge.

Grade Appeal Procedure. The grade appeal procedure for students is itemized below and should be followed in all instances, making sure 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 go on to the next.

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. The professor must respond in writing giving justification for the grade given. Copies of both communications should be forwarded to the Program Professor.

Step 3: An appeal committee will be appointed to mediate the dispute. The 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 fourteen 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 Coastal Studies for review and resolution.
STUDENT COSTS

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<tr>
<th>Fee</th>
<th>Amount</th>
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<tbody>
<tr>
<td>Application fee (non-refundable)</td>
<td>$25</td>
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<tr>
<td>Continuation fee</td>
<td>$150 annually</td>
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<tr>
<td>Graduation fee</td>
<td>$15</td>
</tr>
<tr>
<td>Incomplete fee</td>
<td>$10</td>
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<tr>
<td>Interrupted studies fee</td>
<td>$15</td>
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<tr>
<td>Late registration fee</td>
<td>$15</td>
</tr>
<tr>
<td>Prerequisite challenge exam</td>
<td>$50</td>
</tr>
<tr>
<td>Tuition (per credit)</td>
<td>$110</td>
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<tr>
<td>Internship</td>
<td>$80</td>
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<tr>
<td>Split Payment fee</td>
<td>$10</td>
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</tbody>
</table>

Withdrawal and Refunds. Students may withdraw at any time before the fifth weekend of classes. A request for tuition refund must be made in writing through the third weekend of classes. Refunds will be made solely at the option of the University and will be based on the legitimacy of the reason for withdrawal. When granted, refunds are adjusted as follows: after the first weekend 75%, after the second weekend 50%, and after the third weekend 0%.

The late registration fee is charged at any time payment is received by the school beyond the closing date for registration. The split payment fee is an additional processing charge which is made when students have provided only partial payment during the registration period. The interrupted studies fee is charged to students who return to study after not having registered for course work for one or more terms and therefore have been removed from the Institute’s active student roll. The continuation fee is an annual charge which begins immediately after the completion of course work and 6 hours of thesis registration.

The well-known “Blowing Rocks” of Jupiter Island are formed by marine biological erosion of the Atlantic Coastal Ridge. This coastal preserve is maintained by The Nature Conservancy as part of our natural heritage.
Student fees are due and payable at the beginning of each term. In the event extreme circumstances necessitate the deferment of partial tuition, the student must contact the Comptroller's Office and make individual arrangements. The Institute will assist students in any manner possible to facilitate the processing of financial aid papers.

PLANS AND BENEFITS

Financial Aid and Housing. (see Oceanographic Center, Page 7).

VA Benefits. Students who are eligible for Veterans Administration benefits are invited to consult the Nova VA advisor, who is located in the Financial Aid Office.

Graduate Assistantships. Graduate assistantships are available each term. An assistantship pays the equivalent of the course tuition in exchange for negotiated student services such as operating tutorial sessions, grading for professors, or performing other support services for the department. Assistantships are available only to students who have completed the core courses in the master's program. When vacancies exist, they are filled on a competitive basis. Interested students should contact the Program Office for more details.
Family Tuition Plan. The Department offers special tuition consideration (fifty percent of regular cost for second family member) when two or more members of an immediate family are enrolled in any of the Master’s program courses simultaneously.

Placement Service. The University operates a Placement Office for its graduates. In order to utilize the placement service, students must submit an updated resume to the Institute upon graduation. This service is available to its graduates as a lifelong benefit of Nova University. The Placement Office requires the completion of separate paperwork for membership in the Alumni Association. For further information, contact the Association at the Nova University Office of University Relations.

GRADUATION REQUIREMENTS

In order to be eligible for graduation, students must fulfill the following requirements:

1. completion of all admission requirements
2. satisfaction of all program prerequisites
3. maintenance of a minimum G.P.A. of 3.0 for all graduate work taken
4. completion of all required course work
5. completion of ten core courses for thirty hours of credit and six hours of thesis registration
6. accumulation of 30 convocation hours
7. satisfactory completion and approval of the Master’s thesis
8. recommendation of the faculty

Time Limit. The time limit for the ICS Master’s program is five years. A continuation fee of $150 per year will be charged beginning immediately after the completion of all course work and 6 thesis credits. Students may petition the program office for an extension of the time limit which will be granted only under extenuating circumstances.
COUNSELING

All required paperwork for admission to ICS graduate programs may be processed through the mail. Counseling is strongly recommended but not mandatory. During the counseling process applicants will be advised as to which requirements for acceptance are lacking, and a tentative schedule for the entire program will be prepared. Registration for each term thereafter is routine and may be done through the mail. Registration forms are available at the Institute Program Office at the Oceanographic Center. Registration forms must be signed by the Director or other designated counselor prior to registration. As long as there are no changes in the original proposed schedule applicants will not be required to see a counselor, but one will be available for scheduling appointments. A counselor may be seen at any time by scheduled appointment. During the registration period for each term, counselors are available on a full-time basis. Students must pick up course syllabuses and purchase books at the time of registration in order to be prepared for their first class.

Professor Albert Will demonstrates to Dry Coastal Ecosystems (CZM 610) students proper procedures for pressing herbarium specimens. Shown here is a railroad vine (Ipomoea pes-caprae), an important pioneer plant in the coastal zone, being placed in a plant press for drying before it is mounted and catalogued in the Institute’s herbarium.
PROCEDURES FOR RESOLVING ALLEGATIONS OF MISCONDUCT

The procedure for the disposition of allegations of misconduct follows:

Step 1. Allegations must be made in writing to the Director of the Institute of Coastal Studies, faculty member, or student. All pertinent factors, witnesses, events, and evidence should be included in the allegations. The person bringing the allegations should use the best judgment in gathering evidence at the time of the apparent misconduct.

Step 2. If the allegations constitute probable cause to proceed, the Program Professor will notify the accused in writing that an inquiry will be undertaken.

Step 3. An investigator will assemble all pertinent documentary evidence and statements from witnesses. This will include, if possible, a written statement from the accused in response to the allegations. The investigator will consider all the evidence and recommend action to the Director, citing the pertinent evidence. When misconduct is indicated beyond reasonable doubt, the penalties may be admonition, suspension, or expulsion.

Step 4. A report of the investigation will be provided to the accused. The accused may acquiesce in the recommendation or may submit a written response to the Director of the Institute contesting the recommendation and asking for a hearing. Failure of the accused to respond within 20 days shall be construed as acquiescence in the report of the investigation. If a hearing is requested, the Director shall appoint a committee consisting of faculty and program participants or program graduates. Following the response of the accused and the report of the hearing committee, the Director shall decide on the action to be taken.

Misconduct may include the following types of activities:

1. plagiarism
2. collaboration on examinations or assignments expected to be individual work
3. use of any source to prepare program work without specific attribution (as a general rule, analysis is the participant's)
4. cheating (giving or receiving help during examinations or transmitting examination questions to other participants or falsifying any records including assessments and admissions material)
5. behavior which is flagrantly disruptive to the effective operation of the program
6. behavior which is clearly unprofessional or unethical or which reflects adversely on the Nova program or the professional community
7. behavior which violates the general understanding of the proper conduct for graduate students

STUDENT ASSOCIATION

The Student Association provides a variety of support services to meet the special needs of candidates and especially incoming students. The Association has an ongoing research program to develop the academic needs of students studying coastal science. The continued development of internships and job placement opportunities is among Nova Marine Science Graduate Student Association’s (NMSGSA) special interests. The group’s objectives are 1) to represent the interests of Oceanographic Center students on campus, 2) to aid and encourage others to enter the field of marine and coastal science, and 3) to investigate opportunities for employment.

COASTAL STUDIES CURRICULUM

Required Courses. Required courses in the Master’s program are offered routinely on a sequence basis. Students must take the required courses in the recommended order to insure satisfaction of advance course prerequisites and uninterrupted matriculation. Required courses may not be taken as Directed Individual Study (DIS).

Elective Courses. Elective courses are offered on a rotating basis to insure the needs of students pursuing major specializations. Elective courses may be offered as students’ needs determine. For an elective to be scheduled, a minimum of five (5) students must enroll in the course. If fewer than five students sign up for the class, the elective may be offered as a small seminar or, if necessary, as a Directed Individual Study course.

Program of Education. The Institute offers a Master of Science degree in Coastal Studies to students who wish to pursue major study in the general field of Coastal Studies (Coastal Resource Management). Students must apply through the Office of Graduate Admissions, Nova University, 3301 College Avenue, Fort Lauderdale, Florida 33314. Ordinarily, only applicants with qualifications acceptable for graduate study are considered by the Institute for admission to its master’s program.
A bachelor's degree is required for admission to the Institute. A postgraduate degree in an unrelated field when coupled with at least five years' practical experience in the area of coastal or ocean science may be acceptable in certain circumstances. The Institute encourages graduate students with a wide variety of educational and cultural backgrounds, as well as differing work experience, to apply to the program. It welcomes foreign student applications. It seeks to foster an educational environment in which individuals with many different types of knowledge and skills will have the opportunity to interact with each other while dealing with subject matter and problems of the coastal environment that are both comprehensive and complex. Students with a natural science background should anticipate learning more about the context in which the science and its technology are used. Students with a grounding in social science will have an opportunity to develop their skills in application to coastal resource science and technology.

Coastal fresh water marsh in the Merritt Island National Wildlife Refuge showing typical hydrophilic vegetation. These marshes were common along southeast Florida coasts prior to land drainage and development.
<table>
<thead>
<tr>
<th>TERM/DATES</th>
<th>COURSE</th>
<th>DAY/TIME</th>
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<tbody>
<tr>
<td>1983 FALL (8309)</td>
<td>CZM605 Coastal Engineering and Protection</td>
<td>Tu/6:30-9:30pm</td>
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<tr>
<td>Sept. 26 - Dec. 16</td>
<td>Registration for 8401</td>
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<tr>
<td></td>
<td>CZM609 Principles of Coastal Zone Management</td>
<td>Th/6:30-9:30pm</td>
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<td>December 12-16</td>
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<tr>
<td>1984 WINTER (8401)</td>
<td>CZM607 Coastal Resource Appraisal</td>
<td>Tu/6:30-9:30pm</td>
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<tr>
<td>Jan. 2 - March 23</td>
<td>Registration for 8404</td>
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<td></td>
<td>CZM608 Coastal Economic Activities</td>
<td>Th/6:30-9:30pm</td>
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<td>March 19-23</td>
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<tr>
<td>1984 SPRING (8304)</td>
<td>CZM610 Dry Coastal Ecosystems</td>
<td>Tu/6:30-9:30pm</td>
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<tr>
<td>April 2 - June 22</td>
<td>Registration for 8407</td>
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<tr>
<td></td>
<td>CZM604 Coastal Geomorphology</td>
<td>Th/6:30-9:30pm</td>
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<td>June 18-22</td>
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<tr>
<td>1984 SUMMER (8407)</td>
<td>CZM601 Coastal Dynamics</td>
<td>Tu/6:30-9:30pm</td>
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<tr>
<td>July 9 - Sept. 14</td>
<td>Registration for 8409</td>
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<tr>
<td></td>
<td>CZM602 Coastal Ecology</td>
<td>Th/6:30-9:30pm</td>
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<tr>
<td>Sept. 10-14</td>
<td>1984 FALL (8409)</td>
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<tr>
<td></td>
<td>CZM603 Law and the Coastal Zone</td>
<td>Tu/6:30-9:30pm</td>
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<tr>
<td>Sept. 24 - Dec. 14</td>
<td>Registration for 8501</td>
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<td></td>
<td>CZM606 Wet Coastal Ecosystems</td>
<td>Th/6:30-9:30pm</td>
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<td>Dec. 10-14</td>
<td>N.B. The following electives are offered on</td>
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<td>a tutorial basis each term but require</td>
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<td>weeks prior to registration.</td>
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<td>CZM620 Coastal Conservation</td>
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<td>CZM625 Coastal Environmental Quality Control</td>
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<td>CZM630 Coastal Energy Resources</td>
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<td>CZM635 Remote Sensing Technology</td>
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<td>CZM640 Barrier Islands and Beaches</td>
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<td>CZM641 Quaternary Coastal Geology</td>
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<td>CZM645 Coastal Zone Climatology</td>
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<td>CZM650 Coastal Soil and Vegetation Systems</td>
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<td>CZM660 Marine Archaeology</td>
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<td>CZM700 Marine Botany</td>
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<td>CZM710 Topics in Marine Ecology</td>
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<td>CZM720 Concepts in Marine Geology</td>
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<td>CZM730 Surveys for Coastal Management</td>
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<td>CZM740 Marine Technology</td>
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<td></td>
<td>CZM750 Oceanographic Instrumentation</td>
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<td></td>
<td>CZM760 Coastal Fisheries Management</td>
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<tr>
<td></td>
<td>CZM770 Introduction to Ichthyology</td>
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<tr>
<td></td>
<td>CZM775 Directed Independent Study</td>
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<td>CZM776 Directed Independent Study</td>
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<td>CZM777 Directed Independent Study</td>
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CORE COURSES

CZM 601 Coastal Dynamics / 3 sem. hrs. Introduction to natural systems affecting coasts. Various types of phenomena that influence the nature of coasts and coastal features include bedrock, weathering and soil regimes, crustal movements, maritime climates, changing sea levels, waves, currents, tides, erosion and sedimentation, and ice.

CZM 602 Coastal Ecology / 3 sem. hrs. A review of geographical principles with special emphasis on the coastal zone. Special emphasis on the coastal zone. Concepts of energy flow, nutrient cycles and community trophic structures will be discussed as relates to world coastal ecosystems. The use and preservation of living resources is described for marshes and estuaries, freshwater rivers and swamps, beaches and dunes, barrier islands, and the inner continental shelf.

CZM 603 Law and the Coastal Zone / 3 sem. hrs. 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 which pertain to the coastal zone and adjacent territorial waters.

CZM 604 Geomorphology of Coasts / 3 sem. hrs. The scientific interpretation of the origin, development, and classification of coastal landforms. Various types of mapping procedures used to delineate coastal features are described in relation to land-based aerial photo techniques as well as photo bathymetry operations. New techniques of data acquisition and application are outlined.

CZM 605 Coastal Protection and Engineering / 3 sem. hrs. Evaluation of practices of coastal and offshore engineering in terms of impacts on the shoreline. Causes of both desired and unwanted modifications of coastal configuration are described from a practical point of view. Aspects of applied geomechanics are considered in relation to civil, military, and industrial engineering projects.

CZM 606 Wet Coastal Ecosystems / 3 sem. hrs. A global review of coastal wetlands, brackish marshes, mangrove swamps, reef communities in tropical areas, and other habitats characterizing the coastal zone. There will be an in-depth analysis of ecological parameters characterizing selected ecosystems. The interaction between ecosystems as well as the impact of natural and man-induced perturbations will be explored.

CZM 607 Coastal Resource Appraisal / 3 sem. hrs. Inventory of the global natural resource base in the coastal zone and integration of human wants, social objectives, and technological and societal arts. Evaluation of natural resources is considered in terms of potential use and conflicts of interest. Resource expenditure and income as well as employment and trade in the coastal zone are also studied.

CZM 608 Coastal Economic Activities / 3 sem. hrs. Introduction to the economic geography of coasts. Emphasis is placed on patterns of economic distribution, and factors and processes affecting the areal distribution of these patterns. Such activities include fishing and mariculture, mining, transport and shipping, tourism, manufacturing, agriculture (including aquaculture), forestry, and settlement.

CZM 609 Principles of Coastal Zone Management / 3 sem. hrs. 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.

CZM 610 Dry Coastal Ecosystems / 3 sem. hrs. A comprehensive review of coastal drylands comprising dune strands, barrier beaches, old dunes, hammocks, and the submaritime fringe. The complexities and subtleties of ecological relationships and importance of organic resources in this zone are emphasized.
ELECTIVES

CZM 620 Coastal Conservation / 3 sem. hrs. Introduction to techniques used to promote coastal resource planning and development programs. Principles, practices, use efficiencies, plans, policies, research, cooperative efforts, and restraints are considered in terms of man's stewardship of the coastal zone.

CZM 625 Coastal Environmental Quality Control / 3 sem. hrs. Deals with various forms of environmental pollution as they affect both the land and maritime environment. Topics range from pollution control measures (e.g. oil spill clean-up procedures) to urban waterfront renewal.

CZM 630 Coastal Energy Resources Development / 3 sem. hrs. Consideration of the impact of energy development in the coastal zone. Various aspects of tidal power and sea-solar plants, and wave machines are dealt with in addition to the development of offshore oil and gas fields.

CZM 635 Remote Sensing Technology / 3 sem. hrs. Introduction to technological developments in remote sensing as they are related to the study and mapping of shoreline features, coastal engineering, and coastal zone management. Applications of conventional aerial photography and imagery from other sensors are identified for the purpose of reference, education, and stimulation to further research.

CZM 640 Barrier Islands and Beaches / 3 sem. hrs. Overview of Atlantic barrier beach ecology that considers hydrologic, soil, and vegetation systems. A wide range of ecological conditions is discussed in relation to the physical processes which affect shorelines.

CZM 641 Quaternary Coastal Geology / 3 sem. hrs. The morphology of coasts and littoral materials (marine sediments, beach deposits, soils, middens), especially as they were affected by Pleistocene glaciations. Analyses of coastal features, sedimentation processes, and stratigraphy are reviewed in relation to eustatic theory, paleontology, and archaeology. Dating of Pleistocene events focuses on tropical and subtropical shoreline features and deposits. Prerequisite: CZM 604 or consent of instructor.

CZM 645 Coastal Zone Climatology / 3 sem. hrs. Maritime climates, local meteorological conditions, upwelling and coastal currents, and air-sea interactions reviewed in relation to their impact or importance to coastal ecosystems, resources, and national economies.

CZM 650 Coastal Soil and Vegetation Systems / 3 sem. hrs. Introduction to soil and vegetation systems in coastal zones. Outlines basic approaches to systems modelling, concepts of nutrient cycling within and between ecosystems, and reviews problems of stability and change of systems.

CZM 660 Marine Archaeology / 3 sem. hrs. The study of nautical antiquities, especially their detection and protection. Covers concepts related to the conservation of archaeological resources in the coastal zone as well as techniques relevant to underwater excavation, removal, and preservation of marine artifacts.

CZM 700 Marine Botany / 3 sem. hrs. The biology of marine and brackishwater floras of subtropical south Florida and Caribbean environments. Covers aspects of marine plant taxonomy, morphology, and physiology within the context of marine ecology. Related studies of marine algae, fungi, and lichens as well as lithophytic, coral, seagrass, salt marsh, mangrove, and phytoplankton communities are geared to needs of coastal managers. Prerequisite: CZM 606, 610 or consent of instructor.

CZM 710 Topics in Marine Ecology / 3 sem. hrs. Selected topics in marine ecology employing field and laboratory study of biological phenomena in tropical and subtropical Gulf, Atlantic, and Caribbean coastal regimes. Deals with ecological for and management of coastal marine geological resources is emphasized. Considerations of interactions between populations of organisms within biological communities. Aspects of ecosystem structure and function are related to niche parameters of resident species, including marine boring and fouling organisms. Prerequisite: CZM 602 or consent of instructor.
CZM 720 Concepts in Marine Geology / 3 sem. hrs. Processes of sedimentation and erosion on continental margins and deep ocean basins, the geochemistry and petrology of sediments and rocks on the ocean floor, evolution of ocean basins and continental margins, submarine relief features, continental drift and plate tectonic theory, and the influence of waves and currents on the ocean bottom. Exploration for and management of coastal marine geological resources are emphasized. Prerequisite: CZM 604 or consent of instructor.

CZM 730 Surveys for Coastal Management / 3 sem. hrs. Introduction to baseline survey systems and technical aspects of gathering and interpreting information on components of physical and biological systems. Covers information systems and survey planning for components of the biogeoecosystem, e.g. surveying operations for topography (heights, depths, slopes), soil distribution patterns, geochemistry, radiant energy, air, water, weather, and vegetation. Methods for monitoring the status of ecosystems are considered in relation to parameters sensitive to human influences. Descriptive statistics and sampling techniques are emphasized. Prerequisite: CZM 601, 602, and 604 or consent of instructor.

CZM 740 Marine Technology / 3 sem. hrs. Basic seamanship providing practical instruction, both at sea and in inland coastal waters, for boat operators, commercial fishermen, and coastal oceanographic technicians. Instructional assistance is provided by an advisory committee consisting of representatives from local fishing and marine-related industries. Use of marine and terrestrial navigation equipment under different sea, tide, and weather conditions will be covered. Prerequisite: CZM 601, Certification from Sea Survival Training Course (Institute of Survival Technology, Oceanographic Center) and consent of instructor.

CZM 750 Oceanographic Instrumentation / 3 sem. hrs. Instrument systems for coastal oceanography, including signal and data processing and design problems. Deals with instrumental platforms (buoys, surface ships, submersibles, SCUBA, satellites, aircraft), the measurement of waves and tides, chemical and geophysical measurements, and measurement of fluid motion. Instrument characteristics, development, and systems are reviewed. Prerequisite: Consent of instructor.

CZM 760 Coastal Fisheries Management / 3 sem. hrs. Considerations of the complex mixture of biological, economic, social, and political problems related to the management of fish stocks. Coastal-marine farming and ocean ranching methods are related to fish and shellfish industries. Artificial reefs and fish attracting devices (FAD's) are considered in relation to sport and commercial fisheries. Prerequisite: CZM 602, 606, or consent of instructor.

CZM 770 Introduction to Ichthyology / 3 sem. hrs. Classification, anatomy, evolution and genetics, natural history and ecology, physiology, and conservation of fishes for the coastal manager. The major groups of fishes, their interrelationships and geographic distribution are introduced. Commercial fisheries as well as the propagation and role of food, game, ornamental, and bait fishes are considered.

CZM 775, 776, 777 Directed Independent Study (DIS) / 3 sem. hrs. DIS courses 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 the 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.

CZM 780 Ports and Harbors / 3 sem. hrs. 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 impacts. Emphasis will be placed on analysis of modern practices. Prerequisite: CZM 605 or consent of instructor.
Division of Biological Sciences

Graduate programs in biological sciences are the responsibility of the Biology Laboratory of the Nova University Oceanographic Center. Curricula leading to the doctorate with major emphasis on Biological Oceanography/Marine Biology are shared with the Oceanographic Center and the Institute of Coastal Studies. Curricula leading to the doctorate with major emphasis on the biology of disease processes are shared with the Goodwin Institute for Cancer Research.

FACILITIES AND CURRENT PROGRAMS

In addition to the facilities described for the Oceanographic Center, the Biology Laboratory has available instrumentation and facilities to support a variety of project areas. Current interests include: biochemical systematics and evolutionary genetics; the application of these and classical approaches to fisheries-related problems; and the metabolism of organic pollutants by marine organisms, particularly algae. In addition to laboratory facilities for physiological and biochemical studies, the lab has two research boats and dive equipment to support field studies ongoing in the Port Everglades/Fort Lauderdale area and in the Florida Keys in the vicinity of Elliott Key in Biscayne National Park. Collaborative studies are also ongoing with Everglades National Park personnel.

GOODWIN INSTITUTE FOR CANCER RESEARCH

The Goodwin Institute for Cancer Research is located in nearby Plantation, Florida. The Goodwin Institute is a 26,000 sq. ft. cancer research complex, with its own animal production unit housed within the research building. Immunology, virology, histopathology, microbiology, cell culture, electron microscopy and photography, and instrument design laboratories are included in the Institute’s physical facilities. The Primary Genetic Center, one of five in the nation operated for the National Cancer Institute, raises and annually distributes over 200,000 barrier-maintained rodents to scientists in the National Cancer Program. The Institute is a member of the American Association of Cancer Institutes.
The doctoral program is oriented toward qualified students having an interest in cell biology with emphasis on oncology, immunology, virology, and biochemistry. Opportunities for field studies in marine biology and experimental cancer research in animals are excellent. Programs are formulated to meet the needs of the individual student. Candidates are expected to demonstrate evidence of scholarly work in the form of a dissertation based on laboratory research.

Bill Raymond, from Ocean Research and Survey, Inc., demonstrates the handling of a core barrel containing a two meter core sample. Sampling is conducted in a cut-off meander loop as part of the Port Everglades mangrove mitigation project.

Current research interests include: experimental carcinogenesis, effects of hyperthermia and hyperbaric oxygen on drug potentiation, immune response and neoplastic transformation, mechanisms of antitumor drug action, and mechanisms of cell-mediated immune processes.
Student Rights
And Responsibilities

Definitions. When used in this code —

a. The term "center" means Nova University Oceanographic Center.

b. The term "student" means any person registered for enrollment in any center course; or any person enrolled in a center program at the time of the alleged violation of this code; or any person on the premises or center-related premises for any purpose related to registration for enrollment.

Statement of Rights.

a. The center affirms the right of each student to be free from discrimination on the basis of race, color, national origin, religious creed, political views, or sex.

b. The center affirms the right of each student to conduct research and to publish, discuss and exchange findings and recommendations, except that the University may promulgate rules and regulations related thereto.

c. Each student shall have the right to petition the center for redress of grievances, amendment of regulations and modification of center policies.

d. Students shall be secure in their persons, living quarters, papers and effects from unreasonable, illegal, or unauthorized searches and seizures.

e. The center affirms the right of students to be members of University and college committees, except that a student may not be a member of a committee by rule constituted exclusively of members of the university faculty.

f. The center recognizes each student’s right of freedom of speech, assembly and association as guaranteed by the Constitution, and all provisions of this code shall be construed consistent with these rights.

g. The center recognizes the right of each member of the University community to interview for employment with any organization, firm, corporation, or any other body.
Reservation of Power. Nova shall reserve the right to amend, modify, change, add or delete such rules and regulations which may affect its relations with its students, as may be prescribed by law or deemed necessary by the administration.

Further, Nova reserves the right to change academic requirements, curriculum, tuition and/or fees when in the judgment of the administration such changes shall be required.

Educational Records and Privacy. Nova maintains a system of student records which includes, but is not limited to, application forms, letters of recommendation, transcripts of prior academic achievement, standardized test scores, evidence of professional standing and other admissions credentials as well as progress records (transcripts) of the student’s studies at Nova.

Nova requires written consent of the student to disclose any personally identifiable information. Said consent shall specify the record to be released, to whom and for what purpose.

Nova shall release records or components thereof without the written consent of the student only in the following instances:

a. for purposes of audit and evaluation of federal and state programs

b. to authorized representatives of:
   1. the Comptroller General of the United States
   2. the Secretary of the U.S. Dept. of Health, Education and Welfare, Commissioner of Education or their deputies
   3. State educational authorities

c. Nova personnel deemed to have a legitimate educational interest

d. persons or organizations providing financial aid or determining financial aid decisions concerning eligibility, amount, condition and enforcement of said aid
e. accrediting organizations in carrying out their functions
f. parents of students who have established the student as a dependent according to the provisions of the Internal Revenue Code
g. persons in compliance with a judicial order or lawfully issued subpoena
h. persons in an emergency, if the knowledge of the information, in fact, is necessary to protect the health or safety of the student or other persons.
Nova may release without written consent information which it may deem as directory information for currently enrolled students provided:

a. the student is notified of the categories designated as directory information

b. the student is given the opportunity to refuse disclosure of any or all of the categories

c. the student is given a reasonable period of time in which to submit said refusals in writing

Nova may release without written consent of the student information expressly limited to the fact as to whether or not the student is currently enrolled.

Nova may release without written consent information which it may deem as directory information for students no longer enrolled.

Nova shall not provide access to the student of any admission records of that student unless and until that student shall be enrolled as a student.

Nova shall provide the opportunity for the student to seek correction of the information contained in the student records and add explanatory or rebuttal information.

Nova shall advise any party provided with identifiable student information, that such information is not permitted to be disclosed without the prior written consent of the student.
Academic Centers and Major Programs of Study
The Center for the Study of Administration offers a variety of programs at the doctoral and master's degree levels that stress innovative learning processes and delivery systems for working professionals who wish to increase their administrative or managerial effectiveness.

The major programs offered at the master's degree level are: the Master of Business Administration (MBA) which thoroughly develops the quantitative skills used in management; the Master of Public Administration (MPA) designed for persons aspiring to management positions in public and community service agencies; the Master of Science in Criminal Justice (MSCJ) for persons in law enforcement and corrections agencies; the Master of Science in Human Resource Management (MSHRM), which is built on a foundation of behavioral science, is for managers who are responsible for such functions as organizational staffing, affirmative action and equal opportunity requirements, management education, and development or career planning. There are also various majors that may be taken in conjunction with the MBA, MPA, and MSHRM degrees, such as accounting, computer systems management, criminal justice, health management, and procurement and contract administration. MBA graduates are also offered selected legal courses and receive a certificate recognizing this para-legal course work.

The Center's two doctoral level programs address both public and private sector management. The Doctorate in Public Administration (DPA) is national in scope, is offered in several states, and is built around a senior faculty drawn from key government and academic centers throughout the United States. The degree is designed to broaden the professional competence of practicing administrators in the public sector. The DPA curriculum addresses the environment, processes, techniques and methods of public management and provides, through participant clinical or laboratory experience, direct learning in the key functions, systems, and roles involved in the administration of public institutions and enterprise at all levels of government. The degree content is guided by the standards set by the National Association of Schools of Public Affairs and Administration (NASPAA).

The Doctorate in Business Administration (DBA) prepares people for careers in teaching, research, or managerial positions. The DBA curriculum covers the spectrum of foundation knowledge, both quantitative and behavioral, represented by the professional divisions and special interest groups of the Academy of Management and includes electives dealing with advanced study in international business management and finance.

In addition, through its Management Assistance Service, the Center seeks to promote efficient and economical methods of administering local government and other public bodies. It helps develop programs based on knowledge and consideration of the needs and resources of the particular community. The Center also provides an Urban Workshop where the application of system dynamics to local and state administrative issues can be undertaken by practitioners and research persons.
Behavioral Sciences Center  The Behavioral Sciences Center focuses on the study of human behavior.

The Department of Psychology offers the Ph.D. in clinical psychology. This is a full-time on-campus degree program. The Master of Science degree is offered in counseling, gerontology, applied psychology, psychometry, school guidance. The Educational Specialist degree is offered in school psychology. The Master of Science degree programs in counseling, applied psychology and human services are offered at both on-campus and off-campus locations.

The Florida School of Psychology has become a component of the Behavioral Sciences Center of Nova University and is now called the School of Professional Psychology.

Established in 1977 in Miami, the Florida School of Professional Psychology offers the Doctor of Psychology (Psy.D.) degree on a full-time basis to students seeking a career in psychology in a practitioner-oriented format rather than in a research-oriented manner. This degree, the Doctor of Psychology (Psy.D.), will now be offered by Nova University.

The Behavioral Sciences Center also operates, or is affiliated with, various institutes and clinics which provide facilities for research and service in the behavioral sciences. These include: The Nova University Clinic, Inc., The Children’s Assessment and Treatment Program, The Biofeedback Clinic and Laboratory, The Institute of Social Services to Families (Foster Parent Project), The Family Center, and the Psychology Department Clinic.

Family Center  The Family Center is a community resource located on the Nova Ft. Lauderdale/Davie Campus. The Center provides a network of programs and services designed to strengthen the family and enhance the quality of family life. It serves as a training facility for students in clinical and applied developmental psychology. The Family Center provides:
FAMILY PROGRAMS — a selection of courses and programs for families with young children.

CLINICAL PSYCHOLOGY — a wide range of psychological services, including psychological and neuro-psychological assessment, individual therapy, family therapy, and group therapy.

EDUCATION — educational and learning disability assessment, private and small group tutoring, learning disability remediation and college board preparatory classes.

PROFESSIONAL DEVELOPMENT — courses, workshops, and consultative services to child-care practitioners and professionals working with families.

PRODUCTS — resources books for parents of infants, toddlers, and pre-schoolers; training materials for child-care professionals.

RESEARCH — The Family Center provides an ideal setting for conducting research studies relating to families and children.

Nova University at Coral Springs Nova University established an educational center at Coral Springs specifically to meet the needs of men and women living in north Broward County and Palm Beach County. The uniqueness of this branch of Nova University is its community based mission. Classrooms and administrative offices are presently located at 3501 University Drive. Nova has recently purchased a permanent site for its university center in Coral Springs. It is located in the heart of the community services complex across from Mullins Park on N.W. 29th Street. Plans for the first building are in the process of development.

Undergraduate courses leading to the Bachelor of Science degree in a variety of majors are offered at Coral Springs. In addition to regular courses, the Alternative Classroom program offers undergraduate courses through television, newspaper and community research.

The Master of Science degree in counseling psychology is also available. Other graduate programs are in the planning stages. Continuing education courses and workshops are offered for personal enrichment and career development. Cooperating with community agencies, Nova University at Coral Springs is developing a full cultural program.

The Nova University Clinic, Inc. — a non-profit, publicly supported mental health clinic serving Northwest Broward — is located in the Coral Springs center.

Center for the Advancement of Education The Center for the Advancement of Education is dedicated to the training and continuing support of teachers, administrators, trainers, and others working in education. These practitioners serve as the bridge between the knowledge
base in education and the quality of education experienced by their students. The Center hopes to fulfill its commitment to the advancement of education by serving as a resource for practitioners and by supporting them in their self-development.

In accomplishing its mission, the Center offers educational programs designed to meet the needs of the working practitioner and makes a special commitment to provide educational programs in those geographical areas in which there are few resources for the training and for the professional support of practitioners in education.

Because of its commitment to the working professional, the Center offers alternative delivery systems for education that are adaptable to practitioners' work schedules and locations. Center programs reflect and anticipate the needs of practitioners to become more effective in their current positions, to fill emerging roles in the field, and to be ready to accept changing responsibilities within their own organizations. The Center also aids professional educators in achieving personal goals, including certification requirements.

The programs offered by the Center are:

**MASTER'S PROGRAM FOR CHILD CARE ADMINISTRATORS**

This program was developed for the administrator in for-profit and not-for-profit centers. The primary mode of instruction guided study.

**GRADUATE EDUCATION MODULE PLAN (GEM)**

The participants include teachers, administrators, and health educators seeking Master's and Ed.S. degrees, additional areas of certification, extension of certificate and "redirection" credit in 21 majors. Graduate Education Module learning experiences are organized into six and nine-credit modules, the latter taught by faculty teams.

**MASTER OF ARTS IN TEACHING**

This program is designed to prepare, for a career in teaching, the person whose undergraduate degree was not in education. The program's major components include the completion of modules in the GEM program and a full year internship at The University School of Nova University.

**Ed.D. IN EARLY CHILDHOOD EDUCATION**

This 3-year field-based doctoral program is designed for employed early childhood professionals. Students represent a variety of early childhood positions: parent educators, pre-school and primary teachers, program directors, exceptional education personnel, early childhood consultants, etc. The program's major components include five study areas, two practicums, and two summer institutes.

**Ph.D. IN APPLIED DEVELOPMENTAL PSYCHOLOGY**

This program is an on-campus, full-time degree experience. Applied research is emphasized for candidates who desire active involvement in the design, implementation, and evaluation of systems and programs for young children.
Center for Higher Education The Center offers programs leading to the Doctor of Education (Ed.D.) in higher education; vocational, technical, and occupational (VTO) education; and leadership in adult education. All are practitioner-oriented, field-based programs that combine formal instruction, independent study, and institutional research into a program of study designed to be completed in approximately three years.

The field-based delivery system requires that program participants be employed and remain employed in positions related to one of the three areas of specialization. A major characteristic of the program is the opportunity for the immediate application of newly acquired knowledge, skills, and techniques to "real world" problems and issues and for conducting research on problems actually encountered by participants.

To graduate, participants must attend and pass seven seminars, successfully perform five practicums (institutional research projects), a Major Applied Research Project, and attend two Summer Institutes. The Center for Higher Education currently offers one or more of its specializations in more than 15 states.

Intensive English Program for International Students The Program provides educational opportunities to meet the academic and social needs of students from different language backgrounds. A prospective student does not have to be a member of a degree program at Nova University or plan to join a university program to be eligible. Students from abroad are admitted with student-visa status.

The goal of the program is to prepare students for successful university or career experiences in the United States by helping them develop
proficiency in the English language in the areas of conversation (listening and speaking), reading, and writing. This full-time program offers students five hours of classroom instruction per day. A Reading Lab and a Language Lab are part of the daily program and are also open after classes for students who want an added hour of individualized practice.

A unique feature of the Program is that it focuses on the individual needs of each student. Upon entrance, students are evaluated in each skill area of the language and are then placed in the appropriate level for each skill.

**Institute for Labor and Industrial Relations** The Institute seeks to provide working professionals in the field of labor and industrial relations with the most current knowledge, insights, and skills to enable them to serve with greater professionalism and competence. It also aims to provide the opportunity for those seeking a mid-career change to attain the necessary background for entry into the field of labor and industrial relations and for recent college graduates to train for careers in the field. The Institute provides consulting services to corporations and agencies and conducts research projects, surveys and related activities for the community. It plans to offer the Master of Science in Labor and Industrial Relations, a career-oriented program presented in a format and at times and locations that meet the needs of working professionals. The Institute presently operates at the New York Institute of Technology, Old Westbury Campus.

**The Center for the Study of Law** The Center offers a full-time, traditional, on-campus, three-year day program of study leading to the J.D. (Juris Doctor) degree. Nova Law Center is fully approved by the American Bar Association. A.B.A. accreditation satisfies the legal education requirement for admission to the bar in any of the fifty states.

The Center admits approximately 225 students into the class entering each autumn. A national law school, it maintains a faculty of 27 full-time faculty, visiting professors and administrators, as well as numerous adjunct professors from the practicing bar. It is located in the Leo Goodwin, Sr., Law Building in downtown Fort Lauderdale, just minutes from the federal, state and local courthouses. This location enables our law students to combine classroom experience with practical skills training. Clinical internships in local Attorney General, States Attorney, Public Defender and Legal Aid offices allow students to represent clients in state courts under the careful supervision and guidance of faculty members and staff attorneys. A judicial clerkship program allows students to experience the judicial side of our legal system through internship with judges in the state and federal courts. Legal skills are developed in a more controlled setting through courses and extracurricular activities which emphasize every aspect of the attorney's function.
The Center allows students from the Center for the Study of Law to earn the MBA degree during their second and third years at the Law Center. This combination of degrees is of special value to attorneys who anticipate a career representing business clients.

Nova Law Center is the only school of law in Broward County, Florida. It maintains the most extensive law library in Broward and Palm Beach counties. The Law Center's close relationship with the community and the practicing bar makes it a dynamic place, preparing its students for their professional growth as members of the legal profession.

**Biology Laboratories** In conjunction with the Ocean Sciences Center, the biology laboratories now offer Ph.D. programs in a variety of sub-disciplines of the biological sciences. Students with master's degrees interested in research opportunities are encouraged to make inquiries.

The curriculum leading to the Doctorate in Biological Sciences is designed to utilize the unique facilities of the Biological Laboratories at the Oceanographic Center and the Goodwin Institute for Cancer Research in nearby Plantation, Florida. The program is oriented toward qualified students with an interest in cell biology with emphasis on oncology, immunology, virology, and biochemistry. Opportunities exist for field and laboratory studies in marine biology and experimental cancer research. Programs are formulated to meet the needs of the individual student. Candidates are expected to demonstrate evidence of scholarly work in the form of a dissertation based on laboratory research.

**Microcomputer Laboratory** The Microcomputer Laboratory provides courses and programs based exclusively on applied microcomputer technology. The laboratory is equipped with the latest versions of the most popular microcomputers. Its extensive software library provides opportunity for the study of the range of applications of software in word processing, simulation, computer-assisted instruction and other areas.
In addition to individual courses, two complete degree programs are offered—the M.S. and the Ed.S. in Computer Education—through the Center for the Advancement of Education. Through these offerings, teachers can gain the competencies needed to provide leadership in the rapidly increasing use of microcomputers in schools.

The Microcomputer Laboratory and its programs were designed and are administered by the Office of New Programs, which develops new program content as well as new delivery systems.

**Nova College—Undergraduate Programs**

NOVA COLLEGE draws upon the extensive human and technological resources of the Nova University/New York Institute of Technology (NYIT) Federation in providing quality undergraduate programs. The College offers programs leading to the Bachelor's degree in accounting, business administration, community services and administration, computer science, computer systems, education, electrical engineering, mathematics, psychology, social science and professional management.

A Day Division is available to qualified average to above average intellectually motivated high school graduates and high school students seeking an education with an emphasis on the liberal arts. All students participate in a comprehensive series of interdisciplinary courses which include experiential components and career orientation through the major. The academic year in the Day Division is 11 months divided into five terms of nine weeks each, permitting students to be enrolled in up to nine credits of time-intensive interrelated course work per term and allowing the completion of the B.A. or B.S. degree in three calendar years. Students who opt to enroll for any four of the five terms can still be considered full time. Some merit scholarships are available to Broward County residents.

The Career Development Programs and the Center for Science and Engineering have been organized for adults. Courses are offered on campus in the evenings and on weekends. They are also offered at institutional, industrial, and other off-campus locations convenient to the student. Although course content is designed to meet traditional educational requirements, courses are scheduled to meet the needs of employed students and are taught utilizing a blend of university professors and knowledgeable practicing professionals in the community.

Most of the approximately 1,200 students currently enrolled in the Career Development Programs and the Center for Science and Engineering College are employed and have passed the traditional age of undergraduates; many have families. They bring with them not only a mature, stable, and determined interest in enhancing themselves through acquiring new knowledge and skills, but also considerable practical experience and a desire to play an active role in their own further education.
Full-time students of Nova College who are Florida residents may qualify for the *Florida Tuition Voucher Plan*. Under the Plan, for the academic year 1981-82, qualified students were eligible to receive as much as $750 payable toward the year's tuition with no obligation to repay it.

**The Oceanographic Center** The Oceanographic Center is concerned with studies and investigation in theoretical and experimental oceanography. Studies include modeling of large-scale ocean circulation, coastal dynamics, ocean-atmosphere interaction, geophysical fluid dynamics, ocean currents, coral reef ecology and geology, physiology of marine phytoplankton, calcification of invertebrates, cell ultrastructure, fouling effects, lobster migration and larval recruitment, and marine fisheries. Primary regions of interest include Florida's coastal waters, the continental shelf and slope waters of the southeastern U.S., the waters of the Caribbean and Gulf of Mexico, and the equatorial Pacific Ocean.

The Oceanographic Center offers the Ph.D. degree in Oceanography.

**The Institute of Coastal Studies** The Institute of Coastal Studies is an academic and research unit of Nova University located at the Oceanographic Center. Multi-disciplinary studies focus on contemporary problems and conflicts arising from increased use of coastal areas. Emphasis is on the use, management, and policy affecting the living and nonliving resources in open coastal regions, estuaries, large inland bodies of water bounded by shorelines, wetlands, and other environments associated with these resources. The program places emphasis on the development and evaluation of alternative solutions to policy and management issues at the international, national, regional, and local levels. The Institute offers the M.S. degree with a major in Coastal Management.
The Institute for Retired Professionals

The Institute for Retired Professionals serves the specific needs of the growing retirement community in South Florida. The program focuses attention on how the educated person can occupy newly found full-time leisure creatively. Because of their varied interests and life experience, IRP members act as teachers and students at the same time: they share with and learn from one another. In the IRP, retirees from all walks of life explore new interests and directions in their retirement years.

The yearly membership fee entitles an individual to enroll in an unlimited number of peer-taught and professionally taught IRP courses offered during weekdays and to benefit from other social and educational opportunities within the university.

School Center

Programs included in the School Center are: THE UNIVERSITY SCHOOL, an independent, culturally-integrated, non-profit school offering instruction to an enrollment of 1,100 students; THE READING LABORATORY, a resource center and library of reading programs which provides diagnostic and prescriptive services for school age children; THE LEARNING TUTORIAL PROGRAM.

The University School of Nova University is located on 17 acres of university land. The main building is a single story structure of 42,000 square feet with a library and media resources center, classrooms, offices and a large combination auditorium, gymnasium, cafeteria. The University School complex includes four tennis courts, three swimming pools and several playing fields.

The School Center of Nova University provides the University and South Florida communities with innovative and alternative educational environments and programs for students from pre-school through high school.

The Center serves as a demonstration facility as well as a training center for prospective and in-service teachers in the fields of early childhood, elementary and secondary education, reading, learning disabilities, and administration and supervision. Its programs and facilities are available to graduate students in the Behavioral Sciences Center and to education majors in the Center for Undergraduate Studies and the Center for the Advancement of Education for the purposes of research and degree-credit internships.

Center for School Leadership Development

The Center for School Leadership Development offers the Doctor of Education degree as a field-based program through its National Ed.D. Program for Educational Leaders. The Program is currently being offered to candidates in 17 states. Open only to practicing elementary- and secondary-level school administrators, this program provides three years of targeted study, in
which candidates must pass eight study areas, satisfactorily complete three performance-oriented practicums, and attend two summer institutes. Using such a structure, the Program seeks to develop the leadership skills of those able to apply their training immediately to the solution of real problems in the schools. By focusing on real life situations and school problems, the Program moves toward its goal of improving elementary and secondary schools.

Center for Science and Engineering The Center for Science and Engineering focuses its efforts in the area of science, mathematics, computer science and electrical engineering. Faced with a rapidly expanding body of technical knowledge, the Center serves three groups of individuals: the computer science or engineering major who is seeking to prepare for a career in technology, the non-major who needs some foundation in science and technology in order to function as an educated person in today’s world, and the professional who needs continuing education to maintain his or her professional knowledge. Classes are offered at night and on Saturday in order to provide an opportunity for the working adult to pursue a professional degree. Electronic, microprocessor and microcomputer laboratories are available for instruction in addition to the University mainframe, a DEC 20. In addition, the Center draws on the resources of Nova’s sister institution, the New York Institute of Technology. To provide this educational base to the community, the Center offers:

• The Master of Science in Electrical Engineering (MSEE), which is designed to combine theory and practice, offers the student the opportunity to focus studies in one or several specialty areas. This program is scheduled to begin 1982-83.

• The Master of Science, major in computer science, is designed to give the student practical experience and in-depth knowledge of computer systems. The program focuses on Software Design.

• The Bachelor of Science in Electrical Engineering, a well-defined professional degree program in which students focus on computer science in addition to the traditional electrical engineering courses.

• The Bachelor of Science, major in computer science, a program which has strong components in both hardware design and software development.

• The Bachelor of Science, major in computer systems, which combines both computer systems and business components.

• The Bachelor of Science, major in computer systems/technical communication, which combines courses in computer systems with those in technical communication.

• The Bachelor of Science, major in mathematics/computer programming which provides the student with formal education in mathematics and computer software development.
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Director, Graduate Programs at The Goodwin Institute
Cell Biology, Immunology

JOSEPHINE HURST, Ph.D.
Hematology, Tumor Biology

BERNARD MEIGNIER, D.V.M.
Virology

ALI SERMET AKAD, M.D.
Physiology, Pharmacology

MIRIAM FANSHAW, M.S.
Gnotobiology, Tumor Biology

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☐ Community Services and Administration
☐ Computer Science
☐ Computer Systems
☐ Education

☐ EVENING DIVISION

☐ Accounting
☐ Business Administration
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☐ Education

☐ NOVA UNIVERSITY AT CORAL SPRINGS
☐ CENTER FOR SCIENCE AND ENGINEERING

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M.P.A.

☐ PUBLIC ADMINISTRATION

M.S.

☐ CHILD CARE ADMINISTRATION
☐ COASTAL ZONE MANAGEMENT
☐ COMPUTER EDUCATION
☐ COMPUTER SCIENCE
☐ COUNSELING
☐ CRIMINAL JUSTICE
☐ EDUCATION (21 Majors)
☐ ELECTRICAL ENGINEERING
☐ GERONTOLOGY

☐ HEALTH EDUCATION
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D.P.A.
☐ PUBLIC ADMINISTRATION

Ed.D.
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☐ EDUCATIONAL LEADERSHIP
☐ HIGHER EDUCATION
☐ LEADERSHIP IN ADULT EDUCATION
☐ VOCATIONAL, TECHNICAL, OCCUPATIONAL EDUCATION

J.D. Ph.D.
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☐ CLINICAL PSYCHOLOGY
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