

Undergraduate Level Coursework (4000 level or below) Counting towards Graduate Programs as of 2/3/2018

Source: Copied from the 2018-2019 Preliminary Course Catalog

<http://www.fau.edu/academic/registrar/PREcatalog/>

College	Major	Degree	Thesis or Non-thesis	Minimum Required Credits	# of UG level credits allowed	Language stated in Preliminary Course Catalog	Status
University Degree Requirements	N/A	Masters - all general programs (MS, MA, MST)	General Language	30	N/A	Language indicates "credit" instead of "graduate credits". MAT & MST state "minimum of 18 credits in major subject, 12 must be in graduate level courses".	
Business	Economics	Masters	Non-thesis	30	6	Three elective credits may be taken at the 4000 level. ECO 4422 is allowed as core requirement.	Initial stages of conversations to develop a 5000 level counterpart for Economics.
Education	Social Foundations *Not accepting students	Masters	Non-thesis	36	6	SYA 4930 and TSL 4251 are listed as optional required coursework	N/A- Not accepting students
Education	Exercise Science	Masters	Non-thesis	34 - 36	3	3 credits of 4000 level allowed as an elective credit (options are listed)	Summer 2017 - Email communication with Dr. Whitehurst. Dr. Roberts is assisting with creating a syllabus for all 5000 level counterparts to submit to UGPC.
Education	Curriculum and Instruction plus K-12 or Secondary Certification (6-12) *Not accepting students	Masters		63-66	39	24 Undergraduate credits are required (specific courses are listed). At least 30 semester hours of specific coursework as required by concentration. No more than half of these hours can be at the undergraduate level.	N/A- Not accepting students
Education	Elementary Education with ESOL plus Certification	Masters	Non-thesis	77-81	32	24 Undergraduate credits are required (specific courses are listed), in addition MUE4013, EDG 3324, and TSL 4081 are listed as required courses.	
Engineering & CS	Computer Science with Focus in Internet and Web Technologies	Masters	Non-thesis	30	3	ISM 4025 (Internet Application Programming) is listed as a required course	
Engineering & CS	Civil Engineering	Masters	Non-thesis	33	3	Maximum of 3 credits of CEGE courses at the 4000 level may be applied toward the degree.	
Engineering & CS	Ocean Engineering	Masters and Combined Program	Non-thesis	33	3	Three credits may be taken at the 4000 level.	
Engineering & CS	Mechanical Engineering	Masters and Combined Program	Non-thesis	33 - 36	3	Three credits may be taken at the 4000 level.	
Science	Environmental Science	Masters and Combined Program	Thesis	36	6	Six credits may be taken at the 4000 level.	
Science	Teaching (Physics)	Masters	Non-thesis	30	5	PHY 3324 and PHY3802L are required.	

of 12 credits of graduate coursework may be used to satisfy both degrees. The baccalaureate degree will be conferred before the master's degree. Please see the [Degree Programs](#) section for a list of combined degree programs and the college sections for the individual combined degree program information.

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GRADUATE DEGREE REQUIREMENTS

Graduate students are responsible for knowing and adhering to University policies and procedures pertaining to graduate education.

Master's Degree General Requirements

The following are general degree requirements for any master's degree at FAU. Students should consult the portion of the catalog dealing with their chosen program for any special or additional requirements.

1. A minimum of 30 credits is required for any master's degree. ^{60?}
2. At least one-half of the credits included in any master's degree program shall be designated as 6000-level courses or above.
3. At least one-half of the credits offered for any master's degree shall be in a single field of concentration.
4. A minimum grade point average of 3.0 is required on all work attempted in a graduate program.
5. If a required thesis or dissertation deals with any federally mandated compliance issues, approval by the appropriate University committee prior to the collection of data is required. Contact the Division of Research for information (561-297-0777).

Master of Arts or Master of Science Degree Requirements

1. A thesis may be required under the supervision of a major professor and a graduate committee, appointed specially for each student by the chair of the major department and with the approval of the dean of the student's college. The thesis must be an original work in the student's major area of specialization. The form of the thesis will follow requirements specified by the college in which it was written; the thesis must follow the Requirements for Graduate Thesis and Dissertation Guidelines, available on the Graduate College website. In general the thesis will comply with the publication requirements of the student's major field. One copy of the thesis is required by the University. Students should check with their graduate advisors concerning the number of additional copies requested by the college. All students submitting master's theses or dissertations will be required to submit an electronic copy to the University library using the library's online submission website. In the case of programs that offer a non-thesis option, these specifications for a thesis do not apply.

2. If required, the student must demonstrate reading knowledge of a foreign language appropriate to the student's area of specialization as determined by the college awarding the degree.
3. The student must complete a minimum of 30 credits beyond the requirements of the bachelor's degree, of which at least 6 credits must be in graduate-level courses in the major. For thesis students, thesis course credit is in addition to this requirement in the major and is determined by the major department. Non-thesis students must complete at least 12 credits in graduate-level courses in their major.
4. A college or department may impose such additional requirements as the faculty may consider desirable, e.g., courses in research methodology, orientation examinations, qualifying examinations or oral examinations in defense of the thesis.

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Master of Arts in Teaching or Master of Science in Teaching Requirements

The University offers the Master of Arts in Teaching degree in the following disciplines: Anthropology, English, French, Geography, Political Science and Spanish.

The University offers the Master of Science in Teaching degree in the following disciplines: Biological Sciences, Chemistry, Economics, Mathematical Sciences and Physics.

Admission Requirements

For admission requirements for these degrees see the Graduate Degree Program Information heading in the appropriate college section in this catalog.

Degree Requirements

1. A minimum of 30 credits (excluding internship) beyond the baccalaureate is required. These include:
 - a. A minimum of 18 credits in the major subject, of which 12 must be in graduate-level courses; [?]
 - b. A minimum of 6 credits involving the study and report of a significant instructional problem in the major discipline. The thesis may be waived and coursework substituted by the supervisory committee or advisor.
2. An internship worth 6 credits is required.

Master of Fine Arts Degree Requirements

1. Completion of the core curriculum and the area of special concentration is required.
2. A minimum grade point average of 3.0 in all work attempted in the graduate program is required.
3. See the [Dorothy F. Schmidt College of Arts and Letters](#) section of this catalog describing the M.F.A. degrees for additional requirements for graduation.

Second Master's Degree Requirements

BUSINESS

Economics of International Trade	ECO 4704	3
International Monetary Economics	ECO 4713	3
International Economic Development	ECS 3013	3
Two additional economics courses (3 credits each at the 3000 level or above)		6

[Top](#)**Economics Minor for Non-Business Majors**

A minor in Economics shall consist of a minimum of 15 credits in upper-division economics courses. The following courses are required, all with a grade of "C" or better.

Core Courses		
Intermediate Microeconomics	ECO 3101	3
Intermediate Macroeconomics	ECO 3203	3
Electives		
Three economics courses (3 credits each at the 3000 level or above)		9

A minimum of 12 of the 15 credits must be earned from FAU, including the core courses.

International Economics Minor for Non-Business Majors

A minor in International Economics shall consist of a minimum of 15 credits in upper-division economics courses. The following courses are required, all with a grade of "C" or better.

Core Courses		
Intermediate Microeconomics	ECO 3101	3
Intermediate Macroeconomics	ECO 3203	3
International Economics Courses		
Economics of International Trade	ECO 4704	3
International Monetary Economics	ECO 4713	3
International Economic Development	ECS 3013	3

A minimum of 12 of the 15 credits must be earned from FAU, including the core courses.

Economics Minor for Business Majors

The Economics minor is designed for non-Economics Business majors requiring the Business Core courses. Because part of its requirements include successful completion of the Business Core classes, the minor is usually not practical for Health Administration majors.

The Economics minor requires three upper-division economics courses (3000 level or above, excluding ECO 3003) with a grade of "C" or better.

A maximum of 3 credits used for the Economics minor may count toward other Business major requirements. A minimum of two courses (6 credits) must be exclusive to the minor. A minimum of 6 credits must be taken in residence at FAU. The acknowledgment of the minor is official upon successful completion of a College of Business degree program.

Economics Minor for Secondary Social Science Education Majors

This minor consists of 12 credits. The following courses are required, all with a grade of "C" or better.

Core Course (choose one)		
Intermediate Microeconomics	ECO 3101	3
Intermediate Macroeconomics	ECO 3203	3
Economic Education Course		
Microeconomics for the Secondary School Class	ECO 4077	3
Upper-Division Economics Courses (choose two)		
ECO, ECS, ECP upper-division courses at 3 credits each, excluding ECO 3003, 4077		6

A minimum of 9 of the 12 credits must be earned from FAU, including the core courses.

[Top](#)**MASTER'S PROGRAMS****Master of Science with Major in Economics**

BUSINESS

The Master of Science in Economics degree prepares students for careers in government and business and provides a basis for Ph.D. study. The program is designed to permit properly prepared full-time students to complete the requirements in one year. Many of the courses are offered in the late afternoon or evening.

Admission Requirements

Unconditional Acceptance: Unconditional or full acceptance into the master's program is granted to applicants who have earned:

1. A bachelor's degree from an accredited institution.
2. A cumulative grade point average of 3.0 on a 4.0 scale in the last 60 (or equivalent) credits of college coursework leading toward a bachelor's degree. Post-baccalaureate coursework from an AACSB-accredited business school not included in an advanced degree may be included in the calculation.
3. Submit an official, competitive score on a GMAT or GRE taken within five years. A score of at least 1000 (combined quantitative and verbal) or 150 Verbal, 150 Quantitative and 4.0 Analytical Writing on the Graduate Record Examination (GRE) or a score of at least 500 on the Graduate Management Admission Test (GMAT). When evaluating GMAT/GRE scores, the admissions committee looks for a balance between verbal, quantitative and analytical writing strengths. All three components of the GMAT/GRE are required.

Conditional Admission: Conditional admission may be given to applicants who fall just short of the requirements. Persons who receive conditional admission have only one academic year in which to meet the specific conditions established by the Director of Master's Programs in Economics. By the end of that year, the director notifies the Graduate College of the final action to be taken, either unconditionally accepting or dropping the student from the master's program.

Degree Requirements

The Master of Science in Economics Program (minimum of 30 credits) provides the General Economics program and two concentrations, International Economics and Financial Economics. The General Economics major offers the tools for in-depth analysis of economics. The International Economics concentration gears the economics program to an international dimension of business in an environment of globalization. The Financial Economics concentration aims to blend the core of economics with the essence of finance in such a way that students take full advantage of the integration of the two disciplines. All economic fields lead to a Master of Science degree with major in Economics. The general program and two concentrations have a common core of economics courses, with the remaining requirements tailored to each area. M.B.A. Foundation courses (ACG 6027, ECO 6008, FIN 6406 and MAR 6055) may be required as prerequisites for desired graduate electives but cannot count for graduate credit.

Core of Economics Courses (12 credits)		
Advanced Microeconomics	ECO 6115	3
Advanced Macroeconomics	ECO 6206	3
Advanced Mathematical Economics	ECO 6403(1)	3
Advanced Econometrics	ECO 6426(2)	3

(1) ECO 6405 can fulfill this requirement.

(2) ECO 4422 can fulfill this requirement. ←

The core classes are taken by all Economics students. Additional requirements for the General Economics program and two concentrations are as follows:

General Economics

Completion of the core classes above and the following.

Two Field Courses in Economics (6 credits)		
Advanced Monetary Economics	ECO 6216	3
Advanced Game Theory and Applications	ECO 6409	3
Advanced Econometrics	ECO 6424	3
Advanced International Trade	ECO 6706	3
Advanced International Development	ECO 6709	3
Advanced International Monetary Economics	ECO 6716	3
International Economics Field Experience	ECO 6958	3

Two Graduate Courses in Business (6 credits):

1. Students with no background in business must take FIN 6406 before taking any other finance course. Foundation courses such as FIN 6406 do not count as graduate credit.

2. Students with prior training in business may select two courses from the approved lists for Financial Economics or International Economics.

Master's Thesis or Graduate Economic Electives (6 credits):

Students may elect to write a master's thesis for 6 credits or take 6 additional credits of Economics courses. One course may be taken at the 4000 or 5000 level.

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BUSINESS**International Economics Concentration**

Completion of the core classes above and the following.

Two Field Courses in Economics (6 credits)		
Advanced International Trade	ECO 6706	3
Advanced International Development	ECO 6709	3
Advanced International Monetary Economics	ECO 6716	3
International Economics Field Experience	ECO 6958	3
Two Graduate Courses in Business (6 credits)		
Multinational Finance	FIN 6605	3
International Business Operations	MAN 6614	3
Global Business Strategy	MAN 6721	3
Emerging Market Economies	MAN 6728	3
Global Environment of Management	MAN 6937	3

3. Students selecting FIN 6605 must complete FIN 6406, or its equivalent, as a prerequisite that cannot count for graduate credit.

Master's Thesis or Graduate Electives in Economics or International Business (6 credits):

Students may elect to write a master's thesis for 6 credits or take 6 additional credits in economics and/or international business. One course, if an economics course, may be taken at the 4000 or 5000 level.

Financial Economics Concentration

Completion of the core classes above and the following:

Two Field Courses in Economics (6 credits)		
Advanced Monetary Economics	ECO 6216	3
Advanced International Monetary Economics	ECO 6716	3
International Economics Field Experience	ECO 6958	3
Two Graduate Courses in Finance (6 credits)		
Financial Management	FIN 6406*	3
* This course or its equivalent must be completed before any other finance course and cannot be counted for graduate credit. Students with prior training in finance may choose two courses from the following:		
Seminar in Financial Markets	FIN 6246	3
Financial Management: Investment Decisions and Policy	FIN 6436	3
Investment Management	FIN 6515	3
Financial Risk Management and Derivatives	FIN 6537	3
Multinational Finance	FIN 6605	3
Theory of Financial Management	FIN 6804	3
Advanced Financial Management	FIN 6806	3

Master's Thesis or Two Graduate Courses in Economics or Finance (6 credits):

Students may elect to write a master's thesis for 6 credits or take 6 additional credits in economics and/or finance. One course, if an economics course, may be taken at the 4000 or 5000 level.

The Master's Thesis

Students electing to write a master's thesis may select the thesis topic and thesis committee. The thesis is written under supervision of this committee, composed of a thesis director and at least two other faculty members. One member of the committee must be from outside the department.

Master of Science in Teaching

Economics offers a Master of Science in Teaching. The following option is for students who hold State of Florida certification in secondary social studies teaching. A minimum of 30 credits is required as follows:

1. Eighteen credits of required courses in the Master of Science in Economics program;
2. Six credits in College of Education courses;
3. Six credits of directed research in economics (a final comprehensive paper with modified thesis format is required).

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Note:

The M.Ed. for uncertified students seeking initial certification is available in Elementary Education plus Certification or Curriculum and Instruction plus Secondary K-12 Certification in the Department of Teaching and Learning.

Admission Requirements (Change effective spring 2018.)

To be admitted to the M.Ed. in Curriculum and Instruction Program, students must complete the graduate application and provide the following documentation showing that they:

1. Have a bachelor's degree from an accredited college or university;
2. Have a professional Florida certificate, have a Letter of Eligibility for temporary certification, or are certifiable in one of the degree areas of specialization in Florida;
3. Have a GPA of 3.0 or better in the last 60 credits of undergraduate work prior to the granting of the bachelor's degree and minimum scores of 143 (quantitative) and 148 (verbal) and 3.5 (analytical writing) on the GRE; **OR** have a GPA of 2.5 to 2.9 in the last 60 credits of undergraduate work prior to the granting of the bachelor's degree and minimum scores of 145 (quantitative) and 153 (verbal) and 3.5 (analytical writing) on the GRE. GRE scores must not be more than five years old.
4. **Submit a cover letter to the department of no more than two pages, including a professional statement specifying the selected area of concentration (if known), reason for applying to the program and professional goals.**

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Program of Studies	36 credits	
Core Courses	(9 credits)	
U.S. Curricular Trends and Issues	EDG 6224	3
Design Components of Curriculum	EDG 6253	3
Program Evaluation in Curriculum and Instruction	EDG 6285	3
Education Electives (choose one for 3 credits)		
Race, Class and Gender in Education	EDF 6637 or	
Global Perspectives of Curricular Trends	EDG 6625	3
Research/Statistics (6 credits)		
Educational Research	EDF 6481	3
Educational Statistics	STA 6113	3
Capstone Course (3 credits)		
Action Research in Schools and Communities	EDF 6918	3
Areas of Concentration (take 15 credits in 5000-level or 6000-level courses in one of the concentrations noted above)		

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**Master of Education with Major in Social Foundations of Education
Multicultural Education Concentration**
(This program is on hiatus and currently not accepting students.)

Admission Requirements

To be admitted to the M.Ed. in Social Foundations Program, students must complete the graduate application and provide documentation that they:

1. Have a bachelor's degree from an accredited college or university;
2. Have a GPA of 3.0 or better in the last 60 credits of undergraduate work prior to the granting of the bachelor's degree and minimum scores of 143 (quantitative) and 148 (verbal) and 3.5 (analytical writing) on the GRE; **OR** have a GPA of 2.5 to 2.9 in the last 60 credits of undergraduate work prior to the granting of the bachelor's degree and minimum scores of 145 (quantitative) and 153 (verbal) and 3.5 (analytical writing) on the GRE. GRE scores must not be more than five years old.

This program offers students a theoretical and conceptual grounding in the historical, philosophical and sociopolitical underpinnings of education for diverse populations in the U.S. The degree also examines the implications of these factors for contemporary education in a globally interconnected world. The goal of the program is to use the theory and research base established in multicultural education to promote greater equity in the way education is shaped and delivered. The program strives to create professionals with the essential background to engender more democratic education for all students, but significantly for underserved populations.

The program is structured for flexibility and rigor, with a required core of four courses and a research and statistics requirement of two courses. Additionally, there are six electives designed around the student's specialization interests. Students are advised to take EDG 5705 in their first semester.

Program of Studies	36 credits	
Core Courses	(12 credits)	
Multicultural Education	EDG 5705	3

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Black Perspectives in Education	EDF 6615	3
Race, Class and Gender in Education	EDF 6637	3
Foundations of Multicultural Curricula	EDF 6887	3
Research/Statistics	(6 credits)	
Educational Research	EDF 6481	3
Educational Statistics	STA 6113	3
(should be taken prior to/concurrently with EDF 6481)		
Elective Courses (6 credits). Take one from following list, and take one graduate course from outside the area of concentration.		
Leadership 1: Adult Learning and Assessment	ADE 6381	3
Thinking Processes and Styles in the Classroom	EDF 6142	3
Educational Psychology	EDF 6229	3
Concepts of Self	EDF 6339	3
Social Forces in Education	EDF 6608	3
Foundations of Global Education	EDF 6800	3
Instructional Program Development	EDG 6255	3
Global Perspectives of Curricular Trends Across Nations	EDG 6625	3
Administrative Applications of Educational Technology	EME 6426	3
Special Topics	HIS 6934	3
Special Topics	LIT 6934	3
Special Topics	SYA 4930	3
Seminar in Race and Ethnic Relations	SYD 6705	3
Seminar in Gender Issues	SYD 6809	3
Seminar in Class, Status and Power	SYO 6535	3
Area of Concentration Courses	(12 credits)	
Option 1 - ESOL Endorsement		
Applied Linguistics and TESOL	TSL 4251	3
Curriculum Development in TESOL and Bilingual Education	TSL 5142	3
Methods of TESOL and Bilingual Education	TSL 5345	3
Assessment Issues for English for ESOL and Bilingual Populations	TSL 5440	3
Option 2 - Foundations/Technology. Take four graduate courses in a field outside of Multicultural Education, approved by the program advisor.		
Option 3 - Content Area Concentration. Take four graduate courses in a content area, both in and out of the College of Education, approved by the program advisor.		

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Master of Education with Major in Early Childhood Education
(This program is on hiatus and currently not accepting students.)

The M.Ed. in Early Childhood Education is a 36-credit degree program providing content expertise for practicing professionals who hold, or intend to assume, a variety of teaching and leadership roles in their respective educational settings, school districts or the nonprofit sector. To strengthen the interdisciplinary focus, the Department of Exceptional Student Education supports the program with courses that incorporate content in inclusive education. This degree is not designed as an initial teacher preparation or certification program. Rather, the program builds on the knowledge and experience of practicing educators.

Admission Requirements

Admission to the M.Ed. in Early Childhood Education program requires submission of the graduate application form. Students must also submit the following documentation, upon which departmental approval will be contingent:

1. Official transcripts of all undergraduate and graduate coursework;
2. A bachelor's degree from a regionally accredited college or university or a graduate degree from a regionally accredited institution;
3. Have a GPA of 3.0 or better in the last 60 credits of undergraduate work prior to the granting of the bachelor's degree and minimum scores of 143 (quantitative) and 148 (verbal) and 3.5 (analytical writing) on the GRE; **OR** have a GPA of 2.5 to 2.9 in the last 60 credits of undergraduate work prior to the granting of the bachelor's degree and minimum scores of 145 (quantitative) and 153 (verbal) and 3.5 (analytical writing) on the GRE. GRE scores must not be more than five years old.

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eligible for graduation, the student must satisfy all University, College, department and program requirements and complete the ESHP upper-division requirements and prerequisite courses with a grade of "C" or better in each course.

Master of Science with Major in Exercise Science and Health Promotion

The master's degree with major in Exercise Science and Health Promotion may be structured with a concentration in Exercise Physiology, Health Promotion, or Strength and Conditioning.

Admission Requirements

1. The student must meet College and University requirements.
2. Any applicant seeking admission into the M.S. program with a major in Exercise Science and Health Promotion must have:
 - a. A minimum grade point average of 3.0 in the last 60 credits of undergraduate work attempted prior to receiving the bachelor's degree and minimum Graduate Record Examination (GRE) scores of 141 on both the verbal and quantitative portions, as well as an analytical writing score of 3.5; or, for those who took the exam before August 2011, a minimum combined score of 800 or equivalent on the verbal and quantitative portions; OR
 - b. A minimum grade point average of less than 3.0 in the last 60 credits of undergraduate work attempted prior to receiving the bachelor's degree and minimum GRE scores of 146 on both the verbal and quantitative portions, as well as an analytical writing score of 4; or, for those who took the exam before August 2011, a minimum combined score of 1000 or equivalent on the verbal and quantitative portions.
3. Students without Exercise Science undergraduate degrees who desire to pursue a master's degree in FAU's Exercise Science and Health Promotion Program must complete specific undergraduate prerequisites. These prerequisite courses may not be used as electives.
4. Graduate students are required to have current CPR certification (HSC 2400, Emergency First Aid/CPR, 3 credits) and CITI.

Admission to Candidacy

See College of Education requirements. Thesis students must pass an oral defense. All students must complete an exit survey and interview.

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Degree Requirements		
Required Common Core (9 credits)		
Educational Research	EDF 6481	3
Research and Evaluation	PET 6505C	3
Educational Statistics	STA 6113	3
Select one concentration from the three below.		

Exercise Physiology (34-37 credits)		
Advanced Sport Nutrition	HUN 6247	3
Aging, Decision-Making and Mobility	PET 5077	3
Exercise Science Lab Methods	PET 5521	3
Advanced Exercise Physiology	APK 6111	4
Human Systems Physiology in Exercise Science	PET 6356	3
Electives		6-9
Thesis option*		6

The non-thesis option requires 9 credits of electives for a total of 34 program credits. The thesis option requires 6 elective credits and a minimum of 6 thesis credits for a total of 37 program credits.

Health Promotion (36 credits)		
Personal and Community Health	HSC 5203	3
Evaluation of Health Promotion and Health Education Programs	HSC 6115	3
Needs Assessment and Program Planning in Health Promotion	HSC 6248	3
Epidemiological Basis of Health	HSC 6505	3
Health Behavior, Health Education and Health Promotion	HSC 6585	3
Electives		6-12
Thesis option*		6

The non-thesis option requires 12 credits of electives for a total of 36 program credits. The thesis option requires 6

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elective credits and a minimum of 6 thesis credits for a total of 36 program credits.

Strength and Conditioning (34-37 credits)		
Advanced Sport Nutrition	HUN 6247	3
Strength and Conditioning Program Design	PET 5391	3
Exercise Science Laboratory Methods	PET 5521	3
Practical Applications in ESHP**	PET 5947	3
Functional Biomechanics	PET 6346	3
Advanced Exercise Physiology	APK 6111	4
Human Systems Physiology in Exercise Science	PET 6356	3
Electives		0-3
Thesis option*		6

The non-thesis option requires 3 credits of electives for a total of 34 program credits. The thesis option does not encompass electives but requires a minimum of 6 thesis credits for a total of 37 program credits.

Elective Options		
Stress Management	HSC 4104	3
Weight Management	HSC 4139	3
Substance Abuse	HSC 4143	3
Health Promotion	HSC 4581	3
Evaluation of Health Promotion and Health Education Programs	HSC 6115	3
Advanced Sport Nutrition	HUN 6247	3
Advanced Methods in Strength and Conditioning	PEP 4138	3
Special Topics	PET 5930	3
Directed Independent Study	PET 6905	1-5
Entrepreneurship in the Health and Fitness Industry	SPM 6116	3

* Students need to be accepted into the thesis option. A writing sample is required as part of the application process. See the graduate coordinator for more information. Students selecting the non-thesis option must complete an additional 9 credits of coursework.

** PET 5947 is taken during the last semester; CSCS certification is required before taking this class.

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Teaching and Learning

Faculty:

Ridener, B. R., Chair; Amirault, R.; Ariza, E.; Bird, J.; Brewer, E. A.; Bristol, V.; Brown, S.; Brown, V.; Calhoun, L.; Carlstrom, D.; Dassa, L.; Fritzer, P.; Furner, J.; Gonzalez-DeHaas, A.; Harris, D.; Heydet-Kirsch, P.; Kumar, D.; Lambert, J.; Lapp, S.; Leit, J.; Marinaccio-Eckel, M.; Ploger, D.; Powell, K.; Rhone, A.; Romance, N.; Towell, J.; Willems, P.

Mission Statement

The Department of Teaching and Learning is committed to preparing knowledgeable, reflective and skilled educators to teach in a globally diverse society with an emphasis on strong content knowledge and meaningful field experiences in all disciplines. The department supports FAU's Strategic Plan including commitment to student success, collaboration with community stakeholders and engagement in scholarly research. Students benefit from faculty members' expertise in content knowledge, pedagogy, research and service. The primary goal as teacher educators is to prepare graduates who become effective, inspirational and successful teachers of diverse learners. The broad range of graduate and undergraduate professional programs in the areas of elementary, secondary, reading, environmental education, instructional technology and educational psychology promote collaboration among faculty, students, school districts, community partners and educational professionals.

Security Clearance

Students registering for courses requiring field experience MUST go through a security clearance process. This process requires students to be fingerprinted and, depending on the school district, to participate in a drug screening to be approved for security clearance. A processing fee payable to the appropriate school district is required. It is strongly recommended that students complete this process once they are admitted to the University.

For detailed information, visit the College of Education Student Services [website](#). Information will also be provided in courses with field placement requirements.

[Link to Elementary Education Honors Program](#)

[Link to Secondary Education Programs](#)

[Link to Secondary Education Honors Program](#)

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Complete an action research project, reviewed by four faculty members and a council of peers, during the revised section of the EIEIO Honors Student Teaching capstone course, present in the College of Education Undergraduate Research Symposium and at least two of the following:

1. Submit to present at the FAU OURI Undergraduate Research Symposium;
2. Apply for publication in the *FAU Undergraduate Research Journal*;
3. Apply for publication in an educational research journal;
4. Participate as an FAU peer mentor with the Office of Undergraduate Research and Inquiry.

In addition to FAU general education lower-division preparation and content area courses offered by the Dorothy F. Schmidt College of Arts and Letters or the Charles E. Schmidt College of Science, Secondary Education majors in the EIEIO - Secondary Honors Program must take the following Honors-in-the-Major research-enhanced courses:

Introduction to the Teaching Profession	EDF 2005	3
Applied Learning Theory	EDF 3210	3
Educational Measurement and Evaluation	EDF 3430	3
Secondary School Effective Instruction	ESE 3940	3
Subject-Specific Student Teaching		6-12

(See Secondary Program, Course Sequence, Curriculum Matrix for complete course assessments linked to student learning outcomes.)

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MASTER'S PROGRAMS

General Requirements for all graduate programs include:

1. Graduate application;
2. Official transcripts;
3. Official copy of Graduate Record Exam (GRE) not older than five years.

Applicants for graduate initial certification teacher preparation programs in the Department of Teaching and Learning, including Elementary Education (K-6), K-12 and Secondary Education (6-12), must-present passing scores on all sections of the General Knowledge Test.

A maximum of one-third of the total graduate credits taken at FAU as a non-degree student may be applied to the degree program, if approved by the advisor. Up to 6 credits of non-degree program transfer courses may be accepted from other universities at the discretion of the advisor and/or committee.

Master of Education (M.Ed.)

The Master of Education degree is offered with a major in the following areas: Curriculum and Instruction plus K-12 or Secondary Certification (6-12), Educational Psychology, Elementary Education, Elementary Education with ESOL plus Certification, Environmental Education, Instructional Technology and Reading Education. A new Master of Education program with major in Secondary Education plus Certification will be added to the catalog shortly. The programs in Social Foundations of Education: Educational Psychology, Social Foundations of Education: Instructional Technology and Curriculum and Instruction are being phased out.

Notes:

1. The M.Ed. in Reading Education leads to state certification in reading.
2. The M.Ed. for uncertified students seeking initial certification is available in Elementary Education with ESOL plus Certification or Curriculum and Instruction plus Secondary 6-12 Certification.
3. Specific information concerning each M.Ed. K-12 degree program follows.

Master of Education with Major in Curriculum and Instruction plus K-12 or Secondary Certification (6-12)
(This program is not accepting students at this time.)

The master's degree in Curriculum and Instruction plus K-12 or Secondary Certification (6-12) program provides an opportunity for those persons considering a career change to prepare for a new career in teaching and earn a master's degree simultaneously. The program includes professional education and subject area courses leading to a Master in Education as well as initial certification in a specific K-12 or secondary subject area. This program is designed for students who have already completed a bachelor's degree with credits in one of the following subject areas: art, biology, chemistry, English, French, mathematics, physics, social sciences or Spanish. Many content requirements may have been taken as part of the undergraduate degree.

Admission Requirements

To be admitted to the master's degree program in Curriculum and Instruction plus K-12 or Secondary Program (6-12), students must complete the graduate application and provide documentation showing that they:

1. Have a bachelor's degree from an accredited college or university;
2. Have satisfactory GRE scores on file at FAU that are not more than five years old;
3. Have a 3.0 or better GPA in the last 60 credits of undergraduate work prior to the granting of the bachelor's degree or have minimum GRE scores of 154 (verbal) and 144 (quantitative);

EDUCATION

4. Have passing scores on all four sections of the General Knowledge sections of the FTCE. There are no exceptions or waivers to this General Knowledge requirement. All University and departmental admission requirements apply.

Additional admissions requirements exist for international students. Contact the FAU Office of International Students and Scholars and the Graduate College for these requirements.

Professional Education (24 credits)		
Introduction to the Teaching Profession	EDF 2005	3
Applied Learning Theory	EDF 3210	3
Educational Measurement and Evaluation	EDF 3430	3
Introduction to Diversity for Educators	EDF 2085	3
Introduction to Technology for Educators	EME 2040	3
Secondary School Effective Instruction	ESE 3940	3
Content Reading: Middle and Secondary School	RED 4335	3
ESOL Strategies for Content Area Teachers (Students in the English concentration, take TSL 4080 and TSL 4081 instead.)	TSL 4324	3

Areas of Concentration

At least 30 semester hours of specific coursework as required by concentration (see undergraduate program description for detail). **No more than half of these hours can be at the undergraduate level.**

Grades K-12	Grades 6 - 12
Art	English/Language Arts
Foreign Language (French and Spanish)	Mathematics
	Science (Biology, Chemistry, Physics)
	Social Science

6000-Level Content (9 - 12 credits)

1. All students take one to two methods courses in their concentration area.
2. All students also take two graduate courses in their area of concentration. See the program advisor for approved courses in each area.

Curriculum and Instruction Core Courses		
U.S. Curricular Trends and Issues	EDG 6224	3
Design Components of Curriculum	EDG 6253	3

Research/Statistics (6 credits)		
Educational Research	EDF 6481	3
Educational Statistics	STA 6113	3

Student Teaching Internship (6-10 credits)		
Internship*	EDG 6940	6-10

* The Internship is a full-time fall or spring semester experience and requires a separate application. Students must complete all courses (education and subject area) and all sections of the FTCE before internship.

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Master of Education with Major in Educational Psychology**Admission Requirements**

To be admitted to the M.Ed. in Educational Psychology, students must meet the following admission standards:

1. Completion of the graduate application online through the Graduate College;
2. Receipt of official transcripts including all undergraduate coursework;
3. A bachelor's degree from a regionally accredited college or university;
4. Official copy of Graduate Record Examination (GRE) scores not more than 5 years old;
5. Admission decision is based on compliance with one of the following:

EDUCATION

Exceptional Student Education (choose one for 3 credits)		
Survey and Assessment in Early Childhood Education and Early Childhood Special Education	EEX 5015	3
Individuals with Disabilities	EEX 5051	3

Core Courses (15 credits)		
Curriculum: Elementary School	EDE 6205	3
Take four of the following courses		
Art Education in Elementary School	ARE 6317	3
Teaching Health in Elementary School	HSC 5315	3
Language Arts: Elementary School	LAE 6352	3
Literature: Elementary School	LAE 6415	3
Mathematics: Elementary and Middle School	MAE 6151	3
Developmental Reading	RED 6351	3
Reading Diagnosis and Practicum for Classroom Teachers	RED 6518	3
Science: Elementary and Middle School	SCE 6151	3
Social Studies: Elementary and Middle School	SSE 6151	3
Curriculum Development in ESOL	TSL 5142	3
Methods of TESOL and Bilingual Education	TSL 5345	3

Research/Statistics (6 credits)		
Educational Research	EDF 6481	3
Educational Statistics (Should be taken prior to or concurrently with EDF 6481.)	STA 6113	3

Liberal Arts /Education Courses (9 credits at the 6000 level or above)		
All students must take three courses related to elementary education in the College of Education, the Dorothy F. Schmidt College of Arts and Letters or the Charles E. Schmidt College of Science. Students with temporary certification may choose to take an approved course to fulfill state requirements.		

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Master of Education with Major in Elementary Education with ESOL plus Certification

The master's degree (M.Ed.) in Elementary Education with ESOL plus Certification Program provides preparation for a new career in teaching. The program is designed for students who already have a bachelor's degree and intend to become elementary school teachers in grades K-6. Upon completion of the NCATE-approved program, which includes student teaching, the student should be eligible for both Florida certification and a master's degree in Elementary Education. Students should be aware that no more than one-third of the credits in this program can be taken as non-degree-seeking before official admission.

Admission Requirements

To be admitted to the M.Ed. in Elementary Education with ESOL plus Certification Program, students must complete the graduate application and provide documentation showing that they:

1. Have a bachelor's degree from an accredited college or university;
2. Have satisfactory GRE scores on file at FAU that are not more than five years old;
3. Have a 3.0 or better GPA in the last 60 credits of undergraduate work prior to the granting of the bachelor's degree or have minimum GRE scores of 154 (verbal) and 144 (quantitative);
4. Have passing scores on all four sections of the General Knowledge sections of the FTCE. There are no exceptions or waivers to this General Knowledge requirement. All University and departmental admission requirements apply.

Additional admissions requirements exist for international students. Contact the FAU Office of International Students and Scholars and the Graduate College for these requirements.

Core Courses (23 credits)		
Applied Learning Theory	EDF 3210	3

EDUCATION

Educational Measurement and Evaluation	EDF 3430	3
Education in a Multicultural Society	EDF 3610	3
Effective Teaching Practices 1 (Should be taken last in Core Courses.)	EDG 3323*	2
Inclusive Education	EEX 4070	3
Applied Educational Technology	EME 4810	3
Language Arts and Children's Literature	LAE 4353	3
Introduction to TESOL	TSL 4080	3

Area of Study (32 credits, taken after Core Courses)		
Art Education in Elementary School	ARE 6317	3
Teaching Health in Elementary School	HSC 5315	3
Math: Elementary and Middle School	MAE 6151	3
Music: Elementary School	MUE 4013	2
Special Topics	RED 5931	3
Developmental Reading	RED 6351	3
Science: Elementary and Middle School	SCE 6151	3
Social Studies: Elementary and Middle School	SSE 6151	3

The following courses should be taken at the end of the program, just before student teaching.		
Effective Teaching Practices 2	EDG 3324*	3
Reading Diagnosis and Practicum for Classroom Teachers	RED 6518	3
TESOL Issues and Practices	TSL 4081*	3

Research/Statistics (6 credits)		
Educational Research	EDF 6481	3
Educational Statistics (Should be taken prior to or concurrently with EDF 6481.)	STA 6113	3

Capstone Experience (6-10 credits)**		
Internship (Student teaching is in a public school setting five days a week during fall or spring semester.)	EDG 6940*	6-10

* EDG 3323, EDG 3324, TSL 4081 and EDG 6940 are generally not available in the summer term.

** All program courses must be completed prior to student teaching; both professional and subject sections of FTCE must be passed prior to applying to student teaching.

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Master's Degree (M.Ed.) with Major in Environmental Education

The master's degree in Environmental Education is offered through the Department of Teaching and Learning in the College of Education and provides a comprehensive graduate program that prepares future professionals in the field of environmental education and enhances the environmental education knowledge and skills of practicing teachers. This university-wide, interdisciplinary curriculum requires a minimum of 36 credits and includes opportunities to apply academic theory to practical experiences in the classroom, as well as onsite at the Pine Jog Environmental Education Center. For information about this program, contact Dr. Bryan Nichols, nicholsb@fau.edu.

Environmental Education Courses (12 credits) (Department of Teaching and Learning)		
Perspectives of Environmental Education	SCE 6345	3
Advanced Methods of Environmental Education	SCE 6344	3
Trends and Issues in Environmental Education	SCE 6644	3
Capstone Study in Environmental Education	SCE 6196	3

Select one of four elective areas of study in consultation with faculty advisor (12 credits)

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2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;
3. Four technical electives (12 credits at the 5000 level or higher);
4. Up to three courses may be taken while the student is an undergraduate;
5. Before the end of the student's third semester of full-time enrollment, a written thesis proposal must be submitted to the supervisory committee and defended in an oral examination;
6. A master's thesis (6 credits), which must be defended at an oral examination;
7. At least one-half of the credits must be at the 6000 level or above;
8. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

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B.S.M.E. to M.S. Degree Program (Non-Thesis Option)

Candidates seeking a combined program leading to both Bachelor of Science in Mechanical Engineering and Master of Science degrees with the non-thesis option must complete an approved program of at least 33 credits. Out of those 33, 9 credits of coursework (3 credits at the 4000 level and 6 credits at the 5000 level or higher) will count toward both the bachelor's and master's degrees.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual*.

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Degree Requirements

Candidates must complete the following:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;
2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;
3. Seven technical electives (21 credits). One course may be at the 4000 level;
4. Up to three courses, one at the 4000 level and two at the 5000 level or higher, may be taken while the student is an undergraduate;
5. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 11 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;
6. At least one-half of the credits must be at the 6000 level or above;
7. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

B.S.M.E. to M.S. Degree Program (Non-Thesis Option/Business Minor)

Candidates seeking a combined program leading to both Bachelor of Science in Mechanical Engineering and Master of Science degrees with the non-thesis option and with a minor in Business must complete an approved program of at least 36 credits. Out of those 36, 9 credits of coursework (3 credits at the 4000 level and 6 credits at the 5000 level or higher) will count toward both the bachelor's and master's degrees.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual*.

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Degree Requirements

Candidates must complete the following:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6930, Special Topics (Fluid Dynamics);

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2. A math course (3 credits), Mathematical Methods in Ocean Engineering 1;
3. Three technical electives (9 credits), one at the 4000 level and two at the 5000 or 6000 level from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section;
4. Up to three courses, one at the 4000 level and two at the 5000 level or higher, may be taken while the student is an undergraduate;
5. Five business courses (15 credits) as described at the beginning of this College of Engineering and Computer Science section;
6. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 12 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;
7. At least one-half of the credits must be at the 6000 level or above;
8. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

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MASTER'S PROGRAMS

The Master of Science program has both thesis and non-thesis options. The thesis option requires a minimum of 24 credits of coursework and a thesis (6 additional credits). The non-thesis option requires a minimum of 33 credits of coursework. Requirements for the Ph.D. program are described later in this section.

Each student must complete a comprehensive and coordinated Plan of Study requiring depth in one or more of the following areas: mechanical systems, solid body mechanics, fluid mechanics, heat transfer, thermal/fluid systems, helicopter dynamics, materials, manufacturing, controls, robotics and CAD/CAM.

Admission Requirements

Usual admission requirements are as follows. Students with non-engineering bachelor's degrees, [click here](#) for additional requirements.

1. A baccalaureate degree in Engineering, Natural Science or Mathematics, but preferably in Mechanical Engineering and from a regionally accredited institution. A student who does not have a background in mechanical engineering should expect to take additional undergraduate mechanical engineering coursework.
2. Demonstrated proficiency in both written and spoken English. A student from a non-English-speaking country is required to take the Test of English as a Foreign Language (TOEFL) exam and achieve a score of at least 550 (CBT-213, iBT-79).
3. At least a 3.0 (of a 4.0 maximum) GPA in the last 60 credits attempted prior to graduation.
4. A score of 145 or higher on the verbal and 150 or higher on the quantitative portions of the Graduate Record Examination (GRE) or a combined score of 1000 or higher on the verbal and quantitative portions of the GRE taken prior to fall 2011. GRE scores more than five years old will not be accepted.
5. Petitions for admittance to the program will not be accepted when a student wishes to include more than five courses taken as a non-degree-seeking student.

Admission to Candidacy

A student is eligible to apply for candidacy when:

1. The student has completed a minimum of 9 credits as a graduate student.
2. The student has maintained a minimum GPA of 3.0 in all courses attempted as a graduate student.
3. The student has filed an approved Plan of Study for the degree program.

Students should file for candidacy as soon as they are eligible. Usually, no more than 20 credits of completed work before admission to candidacy will be accepted toward a degree program. A student should be admitted to candidacy prior to beginning work on thesis.

Degree Requirements

Students must satisfy all of the University graduate requirements.

[Link to Master of Science with Major in Mechanical Engineering](#)

[Non-thesis Option and Non-thesis Option with a Business Minor](#)

[Link to Master of Science with Major in Mechanical Engineering and Engineering Management Minor](#)

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Master of Science with Major in Mechanical Engineering (Thesis Option)

Candidates for the Master of Science degree with the thesis option must complete an approved program of at least 30 credits including:

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1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;
2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;
3. Four technical electives (12 credits) at the 5000 level or higher;
4. Before the end of the student's third semester of full-time enrollment, a written thesis proposal must be submitted to the supervisory committee and defended in an oral examination;
5. A Master's thesis (6 credits), which must be defended at an oral examination;
6. At least one-half of the credits must be at the 6000 level or above;
7. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

**Master of Science with Major in Mechanical Engineering
Non-Thesis Option and Non-Thesis Option with a Business Minor**

Candidates for the Master of Science degree with the non-thesis option must complete an approved program of at least 33 credits including:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;
2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;
3. Seven technical electives (21 credits); one course may be at the 4000 level or higher with the additional courses at the 5000 or 6000 level;
4. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 11 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;
5. At least one-half of the credits must be at the 6000 level or above;
6. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

Candidates for the Master of Science degree with the non-thesis option and a Business minor must complete an approved program of at least 36 credits including:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;
2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;
3. Three technical elective courses (9 credits) at the 5000 or 6000 level from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section; one course may be at the 4000 level;
4. Five business courses (15 credits) as described at the beginning of this College of Engineering and Computer Science section under the Business Minor heading;
5. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 12 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;
6. At least one-half of the credits must be at the 6000 level or above;
7. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section.

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Master of Science with Major in Mechanical Engineering and Engineering Management Minor

This Master of Science degree program with a minor in Engineering Management is a 36-credit program consisting of advanced courses in mechanical engineering as well as courses in the College of Business. Candidates for this program should have an undergraduate degree in mechanical engineering with a minimum GPA of 3.0 and a score of 145 or higher on the verbal and 150 or higher on the quantitative portions of the Graduate Record Examination (GRE), or a combined score of 1000 or higher on the verbal and quantitative portions of the GRE taken prior to fall 2011. GRE scores more than five years old will not be accepted. Non-English-speaking candidates must have a minimum score of 550 on the TOFEL. Two reference letters and at least two years of professional experience are also required.

Candidates for the Master of Science degree with Major in Mechanical Engineering and Engineering Management minor must complete an approved program of at least 36 credits including:

1. Three core courses (9 credits): EGM 6533, Advanced Strength of Materials; EML 6223, Mechanical Vibrations or EML 6930, Special Topics (Control); and EML 6716, Advanced Fluid Dynamics;
2. A math course (3 credits): EOC 5172, Mathematical Methods in Ocean Engineering 1;

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3. Three elective courses (9 credits) from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section. One may be at the 4000 level;
4. Three required management courses (9 credits) listed in the table below;
5. Two management elective courses (6 credits) from the table below;
6. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from 12 courses in their program of study. The portfolio will be reviewed by the student's supervisory committee;
7. At least one-half of the credits must be at the 6000 level or above;
8. At least one-half of the credits must be from the list of Mechanical Engineering courses shown in the Engineering and Computer Science Course Descriptions section. Only one 4000-level course may be taken from the list of courses below.

Required Management Courses (9 credits)		
Organizational Behavior	MAN 6245	3
Operations Management	MAN 6501	3
Project Management	MAN 6526	3

Management Elective Courses (6 credits)		
<i>Select two courses from the list:</i>		
Business Law for Honors Students	BUL 4424	3
Labor Relations	MAN 4401	3
Introduction to Small Business – Entrepreneurship	MAN 4802	3
Entrepreneurship, Creativity and Innovation	MAN 6299	3
Project Management	MAN 6526	3
Cross-Cultural Management and Human Resources	MAN 6609	3
International Business Operations	MAN 6614	3
Entrepreneurial Consulting Project	MAN 6806	1-4
Seminar in Entrepreneurship/Venture Management	MAN 6875	3
Global Environment of Management	MAN 6937	3

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DOCTORAL PROGRAM

Doctor of Philosophy with Major in Mechanical Engineering

The degree of Doctor of Philosophy with major in Mechanical Engineering is conferred by the University primarily in recognition of a demonstrated ability for independent and original research in the discipline. This ability must be supported by a comprehensive and coordinated plan of advanced study designed to provide a strong background in the fundamentals of mechanical engineering and related areas.

Admission Requirements

Minimum requirements for admission to doctoral studies in mechanical engineering are as follows:

1. A baccalaureate in engineering or a related field from a recognized institution;
2. An average of "B" or better in the last 60 credits of work attempted;
3. A score of 145 or higher on the verbal and 150 or higher on the quantitative portions of the Graduate Record Examination (GRE) or a combined score of 1000 or higher on the verbal and quantitative portions of the GRE taken prior to fall 2011. GRE scores more than five years old will not be accepted;
4. Demonstrated proficiency in both written and spoken English. A student from a non-English-speaking country is required to take the test of English as a Foreign Language (TOEFL) and achieve a score of at least 550 (CBT-213, iBT-79);
5. Three letters of reference attesting to the student's potential for graduate studies in mechanical engineering;
6. Approval for admission by the Department of Ocean and Mechanical Engineering. Usually, an applicant admitted will have a strong record of achievement that exceeds the minimum requirements. It is anticipated almost every applicant will already have a master's degree, but it is not an absolute requirement. Approval for admission by the department will be based on an evaluation of the student's record in terms of likelihood of success in the Ph.D. program.

Admission to doctoral studies does not constitute admission to candidacy for the degree.

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Structural Analysis	EOC 3410C	3
Fabrication of Ocean Engineering Systems	EOC 2801	1

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Third Year, Summer (9 credits)		
Vibrations	EGN 4323	3
Finite Element Analysis for Engineering Design***	EGM 4350 or	3
Innovative Sensing and Actuation Technology***	EGN 4670C	3
Foundations of Society and Human Behavior course		3

Fourth Year, Fall at SeaTech Campus (13 credits)		
Ocean Systems Control and Design	EOC 4804	3
Ocean and Environmental Data Analysis	EOC 4631C	3
Materials 1 - Marine Topics	EOC 3213	1
Ocean Wave Mechanics	EOC 4422	3
Foundations of Global Citizenship course*		3

Fourth Year, Spring at SeaTech Campus (13 credits)		
Ocean Engineering Systems Control and Design Project	EOC 4804L	4
Ship Hydrodynamics****	EOC 4124	3
Marine Materials and Corrosion****	EOC 4201C	3
Underwater Acoustics****	EOC 4307C	3
Ocean Structures****	EOC 4412	3
Foundations of Society and Human Behavior course		3
Total		136

* WAC (Gordon Rule) course.

** Engineering Graphics should typically be taken at FAU.

*** Choose two courses from these four courses.

**** Choose two courses from these four senior elective courses.

Top**COMBINED PROGRAM****B.S.O.E. to M.S. Degree Program**

The Department of Ocean and Mechanical Engineering offers a combined Bachelor of Science in Ocean Engineering to Master of Science degree program. For students taking the thesis option, up to 9 credits of graduate coursework (5000 level or higher in the B.S.O.E. program may be counted for both the B.S.O.E. and M.S. degrees. Students taking the non-thesis option may count 3 credits (4000 level) and 6 credits (5000 level or higher) toward both degrees. With an approximate duration of five years, this combined program provides an attractive way for students to continue their graduate work.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual*.

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Admission Requirements

To be eligible for the joint B.S.O.E./M.S. program, students should:

1. Have an overall GPA of above 3.0 and a GPA of above 3.25 in the last 60 credits of coursework completed at the time of admission. The GPA must be maintained until graduation from the B.S. degree;
2. Formally apply to the joint program, completing the admissions process at least one semester prior to the beginning of the M.S. portion of their program;

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3. Choose either the thesis or non-thesis option for the M.S. part of the program.

Once admitted to the program, students begin taking graduate courses in their senior year that would apply to both the bachelor's and master's degree programs. A maximum of 9 credits of elective courses can be applied to both programs. Students in the joint program must maintain enrollment to remain in good standing. Students must also meet all the degree requirements of the graduate program, including core courses and prerequisites. Those students who complete the M.S. degree program within one year after the completion of their B.S.O.E. degree program will be presented with a certificate of recognition.

MASTER'S PROGRAM

[Link to graduate certificates](#)

The graduate program is structured around a core of courses central to ocean engineering and encompassing the subjects of acoustics, corrosion, physical oceanography, hydrodynamics, advanced mechanics of materials, marine systems and advanced mathematics. This core provides, at an advanced level, the fundamentals required for engineering work in the ocean environment. Additional courses in the fields of acoustics, hydrodynamics, marine materials, offshore structures, coastal engineering and marine vehicles are offered to enable students to pursue areas of interest. A summer program is offered by the department for graduate students attending on a year-round basis.

Financial Aid

Most full-time graduate students in the department receive financial support, usually in the form of graduate assistantships. Graduate assistants normally work on research projects conducted in the department, and their project work usually serves as a basis for their thesis/dissertation. Teaching Assistantships also may be available.

From time to time, graduate assistants are assigned to help a faculty member conduct a course, but direct teaching assignments are not permitted and regular lecture assignments should not be anticipated. Departures from this rule may be considered only for exceptional students with demonstrated teaching abilities.

Several graduate assistantships are available each year and are awarded on the basis of the technical area of interest, the applicant's experience, overall academic record and letters of recommendation. The current stipends for assistantships are \$17,000 for master's students and \$22,000 for Ph.D. students, after admittance to candidacy, for 12 months of service on a half-time basis, plus tuition costs.

Application for Admission

Students are encouraged to begin their graduate studies in the fall semester. Applications for admission should be initiated about one year in advance of the desired starting date and should be filed as early as possible, preferably in the early fall. Normally notification of admission is given several weeks after receipt of the completed application. Depending upon the student's background, certain preparatory courses may be required to make up for deficiencies before full admission to the program is granted. These courses may be taken at FAU.

Application material for admission to the degree programs in Ocean Engineering can be obtained by:

1. Accessing www.fau.edu/graduate/

2. Sending a request to:
Florida Atlantic University
Graduate College, SU 80, Room 101
777 Glades Road, P.O. Box 3091
Boca Raton, Florida 33431-0991

3. Sending a request to:
Graduate Program Administrative Assistant
Department of Ocean and Mechanical Engineering, Bldg. 36, Rm. 182
777 Glades Road, P.O. Box 3091
Boca Raton, Florida 33431-0991

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Master of Science with Major in Ocean Engineering

Three major paths to the Master of Science with major in Ocean Engineering are available to graduate students. Students with non-engineering bachelor's degrees, [click here](#) for additional requirements.

Thesis Option

The thesis option requires a minimum of 30 credits, including a minimum of 6 thesis credits. At least 15 of the credits must be taken from the Ocean Engineering core course list (see core course requirements section). In addition, 9 credits will be selected in consultation with the student's advisor. At least 15 of the 30 credits must be at the 6000 level. Students electing the thesis option will be required to complete the thesis program, which includes successful defense and completion of the thesis.

Non-Thesis Option

This option requires a minimum of 33 credits. At least 15 of the credits must be taken from the Ocean Engineering core course list (see core course requirements section). In addition, 18 credits will be selected in consultation with the student's advisor. No thesis credits may be counted toward this degree. Additionally, 30 of the 33 credits must be at or above the 5000 level. The remaining 3 credits of elective courses may be at the 4000 level.

Master of Science with a Business Minor Option

A non-thesis option, this program leads to a master's degree along with a minor in Business Administration. It requires a total of 36 credits. At least 15 of the credits must be taken from the Ocean Engineering core course list (see core course requirements section). In addition, 6 credits relating to the student's area of focus in ocean engineering must be selected and 15 credits must be selected from the College of Business approved course list outlined under the [Business Minor](#) heading at the beginning of this College section.

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The Admissions and Degree Requirements sections of this catalog contain statements of regulations that apply to all graduate students. Of particular interest is the information under the headings Graduate Admission Regulations and Graduate Degree Requirements. Statements referring to foreign language requirements do not apply to Ocean Engineering students; neither the Master of Science nor the Ph.D. degree requires foreign language proficiency.

Admission Requirements

Specific admission requirements for Ocean Engineering are more stringent than the general FAU graduate admissions requirements.

A candidate for the master's program in Ocean Engineering must satisfy the following entry requirements:

1. A baccalaureate or equivalent degree in Engineering, Science or Mathematics;
2. A 3.0 (on a 4.0 scale) GPA or better in the last 60 credits of undergraduate work;
3. Scores of at least 145 (verbal) and 150 (quantitative) on the Graduate Record Examination (GRE).
4. Must demonstrate proficiency in both written and spoken English. Students from non-English-speaking countries are required to take the Test of English as a Foreign Language (TOEFL) and achieve a score of at least 550 (paper-based) or 213 (computer-based) or 79 (iBT);
5. All students will have a thesis or advisory committee during their studies. For thesis students, their advisor is the chair of the advisory committee. A thesis or advisory committee must be formed before a plan of study can be filed;
6. Students who enter the program without an assistantship will be assigned a mentor by the chair of the graduate committee. Students without an advisor are required to visit at least three faculty members during their first semester requesting to form an advisory committee. A report on the outcome of the faculty visits must be filed with the campus graduate coordinator.
7. Adherence to the policies and regulations and the graduate admission requirements of the University as outlined in this University catalog;
8. Conditional admission may be permitted if the above requirements are not met.

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Degree Requirements

The degree of Master of Science with major in Ocean Engineering will be awarded to candidates who have:

1. Complied with University graduate policies and regulations;
2. Satisfied the University's graduate degree requirements;
3. Satisfactorily completed the appropriate courses of study.

And for the thesis option:

4. Submitted and defended a thesis based on the student's original work in an area of focus.

And for the non-thesis or minor in business options:

4. At the time of application for degree, students must submit a portfolio to their advisor consisting of four graduate projects from courses in their program of study. The portfolio will be reviewed by the student's supervisory committee.

Program Options and Core Course Requirements

Four program options are available to graduate students in Ocean Engineering with either the thesis or non-thesis option. These are shown in a subsequent section.

All graduate students, regardless of option or specialty, must complete the following core courses or must take a satisfactory substitute course of similar content from another university or offer an appropriate substitute consistent with the student's specialty for approval by the supervisory committee by departmental petition.

Mathematical Methods in Ocean Engineering 1*	EOC 5172
Engineering Data Analysis	EOC 6635
Physical Aspects of Oceanography	OCP 6050
<i>In addition, two of the following five courses must be taken:</i>	
Advanced Strength of Materials**	EGM 6533
Special Topics	EOC 6934
Advanced Hydrodynamics 1	EOC 6185
Corrosion 1	EOC 6216C
Engineering Principles of Acoustics	EOC 6317C

* Students with an advanced mathematics competency may obtain exemption upon entrance to the program for Mathematical Methods in Ocean Engineering 1 (EOC 5172) and/or Mathematical Methods in Ocean Engineering 2 (EOC 6174). These students must demonstrate to their advisor, using course descriptions, that the equivalent of five to six courses beyond calculus, including areas such as differential equations, advanced calculus, matrix theory, complex analysis and probability and statistics have been taken. Approval by the graduate programs committee is also required.

** May be substituted with EOC 6934, Special Topics (Theory of Elasticity)

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Transfer Credits

A maximum of 9 credits of graduate-level work earned at FAU as an undergraduate or while in non-degree status at FAU and a maximum of 6 credits earned at another recognized institution prior to admission to the Ocean Engineering graduate program may be transferred to a student's degree program subject to the following restrictions:

1. The student must present a transcript identifying the course, in which the student has earned a grade of "B" or better, along with a catalog/course description.
2. The course must not have been counted toward any other graduate or undergraduate degree awarded or to be awarded to the student. An exception exists in the B.S.O.E. to M.S. program where (1) for thesis students, up to 9 credits (5000 level or higher) may be counted for both degrees; and (2) for students in the non-thesis option, 3 credits at the 4000 level and 6 credits at the 5000 level or higher may be counted toward both degrees.
3. The student's advisor and the Ocean and Mechanical Engineering graduate program coordinator, who may seek the advice of other faculty if needed, will decide whether to accept or reject the course credit.

Recency of Credits

No credit earned ten or more years before the degree is awarded may be counted toward a graduate degree.

Course Load

All students choosing the thesis option and receiving financial assistance must be full-time students. This requires that they are registered for a minimum of 9 credits in the fall semester, 9 credits in the spring semester and 6 credits in the summer semester. All international students must be registered as full-time students. A maximum of 12 credits may be taken in a semester. In the graduation semester, the student may be allowed to take 1 credit.

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Supervisory Committee

All graduate students will be assigned an academic advisor who will assist the student in planning a course schedule for the program and will also approve all course selections, schedules and schedule changes.

By the end of the first semester or at the completion of 9 credits, the student, in consultation with the academic advisor, should make the following selections:

1. A particular program option. If selecting a thesis program, then:
 - a. Chair of the supervisory committee.
 - b. At least two other members for the supervisory committee.

The chair of the supervisory committee, who is normally the student's advisor, and at least two of the other members must be chosen from the Ocean and Mechanical Engineering faculty. Members from outside the department may be chosen for the supervisory committee with the permission of the department chair. The student should obtain the consent of other members to serve on the supervisory committee. Having obtained this permission, the names of the committee members should be submitted to the department chair. The committee acts as a unit to guide the student's degree program.

Plan of Study

Students choosing the thesis option as part of the M.S. program should, as soon as practical after the selection of a supervisory committee, submit a formal Plan of Study to the committee. The plan must be listed on the form titled "Plan of Study for the Master's Degree (Form 6)" and will include all course and thesis work that the student expects to complete for the M.S. degree. The form must be submitted no later than the end of the second semester. Upon approval of the plan, the student will be admitted to candidacy for the M.S. Degree. The student is required to defend his/her thesis proposal before the end of the third semester.

For students electing the non-thesis option, the "Plan of Study for the Master's Degree (Form 6)" must still be completed and approved by the advisor, who will submit the plan to the Graduate College. For both the thesis and non-thesis options, it is required that the admission to candidacy form be completed and submitted at least one semester prior to the semester in which the student expects to graduate.

Fast Track Program

The Department of Ocean and Mechanical Engineering offers an accelerated program option for the Master of Science with major in Ocean Engineering (with thesis) for qualified students who will be supported under research assistantships. The accelerated program allows a student to complete an M.S. degree in 12 months.

The objective of this option is to provide an opportunity for the student to earn a master's degree in one year, which translates into significant reductions in both time and expense, thus allowing the student to enter the workforce sooner, minimizing the financial impact of pursuing an M.S. degree. In order to achieve this goal, the program of study and thesis work must be well defined prior to the student starting the program of study. In addition to the normal requirements, students with an engineering core GPA of 3.5 or better, in conjunction with their prospective graduate studies academic advisor, are invited to submit a letter of intent to the graduate committee for consideration to be admitted into this program. The letter of intent should include an outline of the project and milestones to be reached by the end of each semester. Students admitted into the accelerated option are allowed to take a maximum of 12 credits per semester.

Thesis Work and Progress Reviews

For those students who elect the thesis option, the first step, to be completed by the end of the third semester of full-time enrollment, is the submission of a written thesis proposal to the supervisory committee. This proposal must be approved by the supervisory committee before the student begins extensive work in the selected research area. In the proposal defense, the student presents and defends, as required, the planned research. Each semester after the proposal defense the committee will review the student's progress.

If at any time the progress in the student's research is found to be unsatisfactory, the supervisory committee will report to the department chair, inform the student in writing as to the nature of the difficulties and record the committee's

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Software Engineering Graduate Specialty An Option in Computer Science

Prerequisites

Same as non-thesis programs plus:

Principles of Software Engineering (CEN 4010)
Introduction to Object-Oriented Design and Programming (COP 4331)

Students who have not had COP 4331 may take COP 5339 to satisfy this requirement.

Group 1 Fundamentals

Courses in this group emphasize general fundamentals of software engineering. Included in this group are courses in object-oriented methods, software testing and requirements engineering.

Group 2 Development

Courses in this group address specific issues and techniques more closely related to actual software development. Included in this group are courses in user-interface design, CASE, formal methods and advanced object-oriented topics.

Group 3 Quantitative and Experimental

Courses in this group deal with quantitative and experimental approaches. Included in this group are courses in the areas of reliability, metrics and modeling.

For specific course numbers that belong to the above three groups, consult an advisor in the department.

Thesis option students must take at least six of the above software engineering courses, two from each group.

Non-thesis-option students must take at least eight of the above software engineering courses, at least two from each group. Appropriate special topics courses may also be used to meet these requirements with approval of the student's advisor.

Other Electives

Thesis option students: Two other 5000-level or 6000-level Computer Science and Computer Engineering courses and 6 credits of COT 6970 (Thesis). No 4000-level course is counted toward the degree.

Non-thesis-option students: Three other 5000-level or 6000-level Computer Science and Computer Engineering courses. Also, one 4000-level course may count toward the degree with approval of the student's advisor.

All students must complete at least one-half of their credits at the 6000 level.

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Master of Science with Major in Computer Science with Focus in Internet and Web Technologies

This program is designed specifically for working professionals. Students attend formal classes for two Saturdays per month for 11 months. The remaining instruction is delivered through the latest distance-learning technologies, including FAU's Blackboard system.

The program requires the 11 FAU courses below, totaling 33 credits categorized as software, networking and applications. Special review modules can be arranged for students who lack the required prerequisites. Admission requirements and prerequisites are the same as for the master's degree with major in Computer Science.

Multimedia Systems	CAP 6010
Data Mining and Machine Learning	CAP 6673
Computer Networks	CNT 5008
Mobile Computing	CNT 6517
Computer Data Security	CIS 6370
Theory and Implementation of Database Systems	COP 6731
Wireless Networks	EEL 6591
Internet Application Programming	ISM 4052
Queueing Theory	MAP 6264
Topics in Computer Science (Topics include Web Services, Web Project Development, Network Programming)	COT 5930
Topics in Computer Science (Topics include Advanced Internet Engineering, Ad Hoc Networks, Video Communications)	COT 6930

For fees and other details, contact the department at 561-297-3855 or visit the Computer & Electrical Engineering and Computer Science website.

Master of Science with Major in Computer Science or Computer Engineering with a Business Minor

Those students electing to receive a minor in Business must complete 36 credits, of which 21 are to be from the Computer Science and Engineering courses described in this section of the catalog and 15 are to be from the courses

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1. The student has met the minimum 120 credits for the bachelor's degree; and
2. The student has taken a minimum of 30 credits in 5000 level or higher courses for the master's program.

A maximum of 9 credits may then be counted for both the bachelor's and master's programs if the total number of credits exceeds 150. Students complete the undergraduate degree first.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual*.

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

To be eligible for the joint B.S.C.V./M.S. program, students must:

1. Have a cumulative GPA of 3.25 or higher (FAU and transfer courses);
2. Have a total institution GPA of 3.25 or higher (FAU courses); and
3. Formally apply to the joint program, completing the admissions process at least one semester prior to beginning the M.S. portion of the program.

4. Complete a thesis.

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MASTER'S PROGRAM

Master of Science with Major in Civil Engineering

The mission of the Master of Science with Major in Civil Engineering program is to meet the advanced civil engineering educational needs of recent graduates of undergraduate programs, practicing engineers and those non-engineering professionals wishing to redirect their career paths. Graduates of the program possess these attributes or educational outcomes:

1. Ability to apply knowledge in civil engineering and related subjects significantly beyond the baccalaureate level;
2. Ability to communicate ideas and results professionally in written, oral and graphical forms;
3. Ability to independently conduct research or solve a significant practice-oriented project in civil engineering.

These educational outcomes result from successful completion of a well-planned, rigorous set of courses and a major capstone experience (either a thesis or practice-oriented project).

Students wishing to continue their education but not pursue a formal academic degree are welcome to take graduate courses with the appropriate technical preparation.

Admission Requirements

All students must comply with the College's admission requirements noted under the Master's Degree Program Information header above. Once students meet all College requirements, all applications are reviewed on a case-by-case basis. Students with non-engineering bachelor's degrees, [click here](#) for additional requirements. Students are normally admitted to the Master of Science in with Major Civil Engineering program if they:

1. Possess a baccalaureate degree in Civil Engineering or a closely related engineering field. Students with foreign credentials are required to have a general, not course-by-course, evaluation of their credentials. A GPA evaluation is not necessary. Foreign credentials are evaluated by an independent evaluation service that is a member of the National Association of Credential Evaluation Services (NACES). For a list of member evaluation services, please visit the NACES website.
2. Have achieved a 3.0 (on a 4.0 scale) grade point average in the last 60 credits of undergraduate work;
3. Have achieved scores of at least 145 (verbal) and 150 (quantitative) on the Graduate Record Examination (GRE). GRE scores cannot be more than five years old and must be completed before admission to the program;
4. Have demonstrated proficiency in both written and spoken English. Students from non-English-speaking countries are required to take the Test of English as a Foreign Language (TOEFL) and achieve a score of 550 or 213 (computer-based);
5. Agree to abide by the graduate admission requirements of the University as published in the University Catalog;
6. Distance Learning students must comply with the College of Engineering and Computer Science Distance Education guidelines noted under the Master's Degree Program Information header above.

Degree Requirements

The degree of Master of Science with major in Civil Engineering is awarded to the candidate who has:

1. Complied with University graduate policies and regulations;

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2. Satisfied the University's graduate degree requirements;
3. Satisfactorily completed the appropriate Plan of Study for the degree option selected.

Plan of Study

A Plan of Study is a set of courses and a thesis or project activity chosen and completed in a sequence that meets the needs and interests of the individual student and the degree requirements and other stipulations of the University, College of Engineering and Computer Science and the department. There is no requirement for master's students to be full-time, nor is there an on-campus service requirement. The Plan of Study must be approved by the student's supervisory committee and the department no later than the end of the student's first semester in the program, regardless of the number of credits earned. After this time, modifications must be approved by the supervisory committee.

Degree Options

Two options are available to students pursuing the M.S. in with Major Civil Engineering degree: the thesis option and the project option. Both options are described below. In each case, a minimum cumulative grade point average of 3.0 is required on all coursework attempted.

Master of Science with Major in Civil Engineering with Thesis (A total of 30 credits required.)

1. Requires 6 credits of Master's Thesis, and
2. Requires 24 credits of approved coursework with the following constraints:
 - a. Minimum of 15 credits at the 6000 level;
 - b. Minimum of 12 credits of CECE courses;
 - c. Maximum of 9 credits of CECE courses at the 5000 level may be applied toward the degree.

Master of Science with Major in Civil Engineering with Project (A total 33 credits required.)

1. Requires 3 credits of Master's Project, and
2. Requires 30 credits of approved coursework with the following constraints:
 - a. Minimum of 18 credits at the 6000 level;
 - b. Minimum of 21 credits in CECE courses;
 - c. Maximum of 9 credits of CECE courses at the 5000 level may be applied toward the degree.
 - d. Maximum of 3 credits of CECE courses at the 4000 level may be applied toward the degree.

Program Concentrations

Areas of concentration include:

- Structural/Geotechnical Engineering
- Transportation/Gemotics Engineering
- Water Resources/Environmental Engineering

All Master of Science with Major in Civil Engineering students, without exception, complete one concentration, which includes a minimum of two core classes chosen from a list of courses for each concentration. Note: No more than 3 credits of Directed Independent Study may be applied toward the degree. All course selections must be part of an approved plan of study.

Structural/Geotechnical Engineering Core	
Soil Stabilization and Geosynthetics	CEG 6124
Advanced Structural Analysis	CES 6106
Bridge Design	CES 6325
Structural Dynamics	CES 6585
Prestressed Concrete	CES 6715
Coastal Structures	EOC 6430

Transportation/Gemotics Engineering Core	
Sustainable Public Transportation	TTE 6651
Highway Engineering	TTE 6815
Intelligent Transportation Systems	TTE 6272
Maritime Freight Operations	TTE 6508
Traffic Signal Systems	TTE 6259

Water Resources/Environmental Engineering Core	

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Degree Requirements - Thesis Option

Mechanics	PHY 6247	3
Electromagnetism	PHY 6346	4
Statistical Mechanics	PHY 6536	4
Quantum Mechanics 1	PHY 6645	3
Thesis	PHY 6971	7
Mathematical Physics	PHZ 5115	3
Electives*		6
Total		30

Degree Requirements - Non-Thesis Option

Mechanics	PHY 6247	3
Electromagnetism	PHY 6346	4
Statistical Mechanics	PHY 6536	4
Quantum Mechanics 1	PHY 6645	3
Mathematical Physics	PHZ 5115	3
Electives*		13
<i>Non-Thesis Master's applicants must pass a written or oral examination administered by the department.</i>		
Total		30

* Approved by the graduate advisor.

Note: A maximum of 3 credits in Graduate Research (PHY 6918) will normally be allowed.

Master of Science in Teaching (Physics)

The Master of Science in Teaching (M.S.T.) is designed for physics teachers in secondary schools and community colleges. The cognate area will usually be Mathematics.

Admission Requirements

In addition to meeting all of the University and College admission requirements for graduate study, applicants for the M.S.T. degree must meet all of the following departmental requirements:

1. A B.A. in physics or its equivalent;
2. Have taken the general portion of the GRE. No minimum score is required. (GRE scores more than five years old will not be accepted);
3. A 3.0 GPA or higher in the last 60 credits of undergraduate work; and
4. Approval from the Department of Physics.

Degree Requirements

Electromagnetism 2	PHY 3324	3
Undergraduate Laboratory 1	PHY 3802L	2
Topics in Physics	PHY 5935	6
Master's Thesis (or additional 6000-level Physics Electives)	PHY 6971	6
Electives		6
Education Courses		6
Total		30

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Professional Science Master with Major in Medical Physics

The Professional Science Master with major in Medical Physics degree is an interdisciplinary program that develops advanced scientific knowledge and professional skills. The program provides hands-on learning through on-site training. It aims to engage students with professional goals and help them become scientists uniquely suited to the 21st-century workplace.

Medical physics is an applied branch of physics devoted to the application of concepts and methods from physics to the diagnosis and treatment of human disease. A qualified medical physicist is competent to practice independently in one or more of the subfields (tracks) of medical physics.

The program requires 41 credits (plus the 3-credit prerequisite course, PCB 3703). It provides professional training in partnership with area hospitals and concentrates on the medical physics radiation therapy track, which employs approximately 75 percent of the medical physicists.

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Neuroscience 1	PSB 6345	3
Neuroscience 2	PSB 6346	3 or
Neurophysiology	PCB 5835C	3
Advanced Neurophysiology Lab	PCB 6837L	3
Cellular Neuroscience and Disease	PCB 6849	3
Principles of Neuroscience	PSB 6037	3
Practical Cell Neuroscience	BSC 5417C	3
Human Neuroanatomy	ZOO 6748	3

Students who complete these courses but decide not to pursue the M.S. degree would be required to take one additional 3-credit elective (approved by their faculty advisor) to fulfill the B.S. requirements.

Additional graduate-level courses (15 credits)

In addition to the 12 credits of graduate courses that fulfill requirements for the B.S. degree, the student must take an additional 15 credits of graduate courses from the list shown above or other graduate courses approved by their advisory committee.

Research (6 credits)

An important element of this program is the hands-on laboratory experience. This requirement is met by the formal laboratory courses as well as individual training in a research laboratory, an experience that cannot be duplicated in laboratory courses. Six credits of Master's Thesis (BSC 6971) must be completed. A formal thesis is not required, but the research must be presented as both a written report and oral presentation to an advisory committee.

Comments on Total Credits

A student could complete the requirements of this program and earn both the B.S. and M.S. degree with a minimum of 153-156 credits. Many students will likely finish with more credits.

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Combined B.S. with Major in Biological Sciences and M.S. with Major in Environmental Science

This combined degree program leads to both a bachelor's (B.S.) in Biological Sciences degree and a master's (M.S.) in Environmental Science degree. It is a laboratory and field intensive curriculum that provides hands-on training for students who are interested in a career in the rapidly expanding field of environmental science. This program also provides excellent preparation for the Integrative Biology Ph.D. and the Geosciences Ph.D. The combined degree program is 156 credits, 120 for the undergraduate degree and 36 for the master's degree. Students complete the undergraduate degree first, taking no more than 12 credits of graduate coursework in their senior year, which will then be used to satisfy both degrees. See specific program requirements below.

Prerequisite Coursework for Transfer Students

Students transferring to Florida Atlantic University must complete both lower-division requirements (including the requirements of the Intellectual Foundations Program) and requirements for the college and major. Lower-division requirements may be completed through the A.A. degree from any Florida public college, university or community college or through equivalent coursework at another regionally accredited institution. Before transferring and to ensure timely progress toward the baccalaureate degree, students must also complete the prerequisite courses for their major as outlined in the *Transfer Student Manual*.

All courses not approved by the Florida Statewide Course Numbering System that will be used to satisfy requirements will be evaluated individually on the basis of content and will require a catalog course description and a copy of the syllabus for assessment.

Admission Requirements and Eligibility (Change effective spring 2018.)

Students would take the Graduate Record Exam (GRE) and apply to the B.S./M.S. in their junior year.

In addition to meeting all of the University and College admissions requirements for graduate study, each applicant for the M.S. with Major in Environmental Science must:

1. Have a minimum GRE score of 151 on the verbal section and 151-148 on the quantitative section. GRE scores more than five years old will not be accepted.
2. Have a minimum 3.0 average for the last 60 credits of undergraduate work.
3. Obtain approval from the Environmental Science Program.

Students would typically begin taking graduate courses in their senior year that would apply to both their B.S. and M.S. degrees. The program can be completed in five years by allowing 12 credits of graduate-level courses to fulfill course requirements for both the B.S. and M.S. degrees. Students must maintain a minimum GPA of 3.0 to remain in the program.

Curriculum

The core curriculum for students in the combined B.S./M.S. degree program satisfies the requirements for the Bachelor of Science (B.S.) in Biological Sciences. The difference in this combined program is the emphasis on environmental science and the 12 credits in graduate courses that count toward the M.S. program taken during the senior year.

Core Requirements (47-49 credits)		
Biological Principles and Lab	BSC 1010, 1010L	4

Science

Biodiversity and Lab	BSC 1011, 1011L	4
General Chemistry 1 and Lab	CHM 2045, 2045L	4
General Chemistry 2 and Lab	CHM 2046, 2046L	4
Organic Chemistry 1	CHM 2210	3
Organic Chemistry 2	CHM 2211	3
Methods of Calculus	MAC 2233	3 or
Calculus with Analytic Geometry 1	MAC 2311	4
Principles of Ecology	PCB 4043	3
College Physics 1	PHY 2053	4 or
General Physics 1	PHY 2048	4
College Physics 2	PHY 2054	4 or
General Physics 2	PHY 2049	4
General Physics 1 Lab	PHY 2048L	1
General Physics 2 Lab	PHY 2049L	1
Experimental Design and Statistical Inference	PSY 3234	3 or
Introduction to Biostatistics	STA 3173	3
Select at least three of the courses below (the other may be used as an elective)		
Genetics	PCB 3063	4
Cell Biology	PCB 3023	3
Principles of Ecology	PCB 4043	3
Evolution	PCB 3674	3

Electives (select at least 21 credits from the list below)		
Biochemistry 1	BCH 3033	3
Vascular Plant Anatomy and Lab	BOT 3223, 3223L	4
Marine Botany and Lab	BOT 4404, 4404L	4
Principles of Plant Physiology and Lab	BOT 4503, 4503L	4
Plant Biotechnology	BOT 4734C	3
Biotechnology 1 Lab	BSC 4403L	2
Biotechnology 2 Lab	BSC 4427L	2
Biology of Cancer	BSC 4806	3
Directed Independent Study	BSC 4905	1-3
Honors Research	BSC 4917	3
Honors Thesis	BSC 4918	3
Special Topics (Model Systems Genetics Lab)	BSC 4930	3
Organic Chemistry Lab	CHM 2211L	2
General Microbiology and Lab	MCB 3020, 3020L	4
Medical Bacteriology	MCB 4203	3
Microbial Ecology	MCB 4603	3
Marine Biodiversity and Lab	OCB 4032, 4032L	4
Marine Biology and Lab	OCB 4043, 4043L	4
Marine Microbiology and Molecular Biology and Lab	OCB 4525, 4525L	4
Marine Ecology and Lab	OCB 4633, 4633L	4
Marine Science	OCE 4006	4
Issues in Human Ecology	PCB 3352	3
Human Morphology and Function 1 and Lab	PCB 3703, 3703L	4
Human Morphology and Function 2 and Lab	PCB 3704, 3704L	4 or
Immunology	PCB 4233	3
Molecular Genetics	PCB 4522	3
Comparative Animal Physiology and Lab	PCB 4723, 4723L	4
Reproductive Endocrinology	PCB 4803	3
Cellular Neuroscience and Disease	PCB 4842	3
Practical Cell Neuroscience	PCB 4843C	3
Invertebrate Zoology and Lab	ZOO 2203, 2203L	5

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Functional Biology of Marine Animals and Lab	ZOO 4402, 4402L	4
Ornithology and Lab	ZOO 4472, 4472L	4
Comparative Vertebrate Morphogenesis and Lab	ZOO 4690, 4690L	5

Students should consult their faculty advisor concerning additional courses that may be applied to their degree requirements.

Graduate courses that may count toward both the B.S. and the M.S. requirements (12 credits)

Students may select 12 credits from the graduate courses listed below to count for both the B.S. in Biological Sciences and the M.S. in Environmental Science. See the M.S. in Environmental Science degree requirements here for more courses that count toward the M.S. degree after the B.S. degree is completed.

Colloquium		
Environmental Science Colloquium Series (May be taken more than once.)	EVS 6920	1

Core Subject Areas		
Chemistry		
Chemistry for Environmental Scientists	CHS 6611	3
Geographic Information Systems		
Introduction to GIS in Planning	URP 6270	3
Principles of Geographic Information Systems	GIS 5051C	3
Remote Sensing of the Environment	GIS 5038C	3
Modeling		
Modeling Groundwater Movement	GLY 6836	3
Ecological Modeling	EVR 6070	3
Ecological Theory	PCB 6406	3
Statistics		
Environmental Design and Biometry	PCB 6456	4
Conservation and Ecology		
Biogeography	GEO 5305	3
Plants And People	GEO 6317	3
Environmental Restoration	EVR 6334	3
Flora of South Florida	BOT 5155	2
Flora of South Florida Lab	BOT 5155L	2
Coastal Plant Ecology	BOT 6606	2
Coastal Plant Ecology Lab	BOT 6606L	2
Conservation Biology	PCB 6045	3
Marine Ecology	PCB 6317	3
Advanced Ecology	PCB 6046	3
Marine Ecology Lab and Field Studies	PCB 6317L	2
Scientific Communication	BSC 6846	3
Freshwater Ecology	PCB 6307	3
Freshwater Ecology Lab	PCB 6307L	2
Symbiosis	BSC 6365	3
Environmental Physiology	PCB 6749C	4
Marine Geology	GLY 5736C	3
Coastal Environments	GLY 6737	3
Shore Erosion and Protection	GLY 5575C	3
Global Environmental Change	GLY 6746	3
Environmental Geophysics	GLY 6457	3
Natural History of the Indian River Lagoon	OCB 6810	3
Marine Global Change	OCE 6019	3
Seminar in Ichthyology	ZOO 6459	1-2
Marine Invertebrate Zoology	ZOO 6256	3
Marine Invertebrate Zoology Lab	ZOO 6256L	2
Natural History of Fishes	ZOO 6456	3
Natural History of Fishes Lab	ZOO 6456L	2
Seminar in Avian Ecology	ZOO 6544C	1
Policy and Planning		

SCIENCE

Human-Environmental Interactions	GEA 6277	3
Geographic Analysis of Population	GEO 5435C	3
Culture, Conservation and Land Use	GEO 6337	3
Coastal Hazards	GLY 6888	3
Introduction to Transportation Planning	URP 6711	3
Environmental Analysis in Planning	URP 6425	3
Environmental Policy and Programs	URP 6429	3
Sustainable Cities	URP 4403	3
Urban and Regional Theory	URP 6840	3
Women, Environment, Ecofeminism, Environmental Justice	WST 6348	3
Environmental Philosophy	PHM 6035	3

Thesis Option

A student curriculum consists of a minimum of 36 credits taken in the following four categories:

Core Subject Areas: 22-28 credits from the core subject areas with at least one course from four different core subject areas.

Electives: No more than 6 credits of electives taken outside the core areas will be counted toward the degree, and no more than 6 credits may be 4000-level courses. No more than 3 credits of Directed Independent Study may be counted toward this degree.

Thesis: 6-12 credits (EVS 6971).

Colloquium: 2 credits or more.

Non-Thesis Option

A student curriculum consists of a minimum of 36 credits taken in the following three categories:

Core Subject Areas: 25-31 credits from the core subject areas with at least one course from four different core subject areas.

Directed Independent Study: 3 credits (EVS 6905) required. Up to 3 additional credits may be taken as electives.

Electives: No more than 6 credits of electives taken outside the core areas will be counted toward the degree.

Colloquium: 2 credits or more.

MASTER'S PROGRAMS**Master of Science or Master of Science in Teaching****Admission Requirements**

In addition to meeting all of the University and College admission requirements for graduate study, each applicant for the Master of Science or Master of Science in Teaching degree must:

1. Have scores of at least 151 (verbal) and 148 (quantitative) on the Graduate Record Examination. GRE scores more than five years old will not be accepted;
2. Have a minimum 3.0 average for the last 60 credits of undergraduate work;
3. Obtain approval of the Department of Biological Sciences.

Degree Requirements

There are three degree programs available: thesis option, non-thesis option 1 and non-thesis option 2. Specific requirements for each degree are described below.

Master of Science with Major in Biological Sciences (Thesis Option)

This M.S. degree requires a minimum of 36 total credits (at least half or 18 must be Biology Department courses): 12 credits of coursework at the 6000 level (exclusive of any research credits), 6 credits of Master's Thesis (BSC 6971) and 2 credits of seminar. One seminar credit is given for presenting a thesis proposal, which should be given in the fall or spring of the first year. Another seminar credit is given for presenting a thesis results seminar, which should be given in the fall or spring of the second year. No further graduate seminar credits count toward fulfilling degree requirements. Students can defend their theses either immediately after the thesis results seminar or at another time (summer semesters included). The thesis defense is open to all Biology faculty, but only members of the student's committee can sign off on the thesis. All seminars and theses defenses must be announced via poster and email at least one week in advance. Effort should be made to schedule seminars to maximize attendance; all students and faculty are encouraged to attend.

Of the remaining 16 credits required for the degree, no more than 6 master's thesis credits will be counted. Remaining credits must be completed in courses at the 5000-6000 level.

Before a thesis topic is approved by the thesis committee, a student may explore the feasibility of a thesis project. Students doing such exploratory research can receive up to 3 credits in Directed Independent Study (BSC 6905) and up to 3 credits in Master's Thesis (BSC 6971). Thereafter, no more research credits can be taken until the research topic has been approved by the student's thesis committee. No more than 3 credits in DIS may be counted toward this degree. To be considered on schedule, the research topic should be approved by the thesis committee