FLORIDA ATLANTIC UNIVERSITY™

Graduate Programs—PROGRAM CHANGE REQUEST

UGPC APPROVAL _____
UFS APPROVAL _____
CATALOG _____

DEPARTMENT:
MATHEMATICAL SCIENCES

COLLEGE:
SCIENCE

PROGRAM NAME:
Master of Science with Major in Applied Mathematics and Statistics

EFFECTIVE DATE
(PROVIDE TERM/YEAR)
SPRING, 2016

PLEASE EXPLAIN THE REQUESTED CHANGE(S) AND OFFER RATIONALE BELOW AND/OR ATTACHED:

REQUESTED CHANGE:
REDUCING THE REQUIRED NUMBER OF CREDITS FROM **36** TO **30**.

RATIONALE:

- WITH PROPER SUPERVISION BY FACULTY, A WELL-DESIGNED CURRICULUM OF 30 CREDITS CAN ADEQUATELY PREPARE A STUDENT FOR A CAREER THAT REQUIRES A MASTER'S DEGREE IN MATHEMATICS.
- A 30 CREDIT PROGRAM IS MORE COST EFFECTIVE, THEREBY, ATTRACTING MORE STUDENTS TO THE PROGRAM.
- A 30 CREDIT PROGRAM IS MORE FLEXIBLE FOR A STUDENT TO COMPLETE THE PROGRAM IN A REASONABLE TIME PERIOD.
- MANY REPUTABLE UNIVERSITIES, SUCH AS JOHNS HOPKINS UNIVERSITY, COLUMBIA UNIVERSITY, GEORGE MASON UNIVERSITY, UNIVERSITY OF TOLEDO, UNIVERSITY OF LOUISVILLE, OLD DOMINION UNIVERSITY, AND MANY UNIVERSITIES IN THE SUS SYSTEM, SUCH AS UCF, USF, UWF, UF, OFFER MASTER'S PROGRAMS IN MATHEMATICS OR APPLIED MATHEMATICS OF 30 CREDITS.

Faculty contact, email and complete phone number:	Consult and list departments that might be affected by the change and attach comments.
Yuan Wang, ywang@fau.edu (561) 297 3317	N/A

Approved by:	*Date:*
Department Chair: R. Beinrosal	10/13/15
College Curriculum Chair:	11/15/15
College Dean:	11/15/15
UGPC Chair:	
Graduate College Dean:	
UFS President:	
Provost:	

Email this form and syllabus to *UGPC@fau.edu* **one week before** the University Graduate Programs Committee meeting so that materials may be viewed on the UGPC website prior to the meeting.

Master of Science with Major in Applied Mathematics and Statistics (Revised for the Catalog)

The purpose of this program is to prepare students for the application of mathematics in industry and scientific research. The three tracks currently offered are biostatistics, cryptology and information security, and financial mathematics.

Admission Requirements:
Admission requirements for the M.S. in Applied Mathematics and Statistics are the same as for the M.S. in Mathematics.

Degree Requirements:
To complete the M.S. degree in Applied Mathematics and Statistics, the candidate must complete at least 30 credit hours of graduate course work, and satisfy the following criteria in addition to University requirements:

1. Earn at least 24 credits in courses specified in a degree track, preapproved by the graduate advisor in mathematics, at least 15 credits of which are at the 6000-level (for details, see the graduate advisor or the website);

2. If preapproved by the department graduate committee, up to 12 credits of FAU coursework from outside of the Department of Mathematical Sciences may count toward the degree.

3. Complete a capstone project with the following three options:

   a. Successfully complete and defend a master's thesis, earning at least 6 credits of MAT 6971 (Master's Thesis).
   b. Successfully complete and report on an Industrial Internship, earning at least 6 credits.
   c. Successfully complete a Master's examination.

Master of Science in Applied Mathematics and Statistics (Revised Math Webpage)

The purpose of this program is to prepare students for the application of mathematics in industry and scientific research. The three tracks currently offered in the program are biostatistics, cryptology and information security, and financial mathematics.

ADMISSION REQUIREMENTS:

A Bachelor's degree in Mathematics (or equivalent coursework) with at least 3.0 GPA (or equivalent), three letters of recommendation documenting the applicant's prior work in mathematics focusing on preparation and suitability for success in graduate-level mathematics courses, a quantitative general GRE (revised) score of at least 155, computer competency, and approval of the departmental graduate committee. In addition, it is recommended to include scores of the GRE subject test mathematics as part of the application package.

Click here for detailed application steps: application information.

Degree Requirements:
To complete the M.S. degree in Applied Mathematics and Statistics, the candidate must complete at least 30 credit hours of graduate course work, and satisfy the following criteria in addition to University requirements:

1. Earn at least 24 credits in courses specified in a degree track, preapproved by the graduate advisor in mathematics, at least 15 credits of which are at the 6000-level (for details, see the graduate advisor or the website);

2. If preapproved by the department graduate committee, up to 12 credits of FAU coursework from outside of the Department of Mathematical Sciences may count toward the degree.

3. Complete a capstone project with the following three options:

a. Successfully complete and defend a master's thesis, earning at least 6 credits of MAT 6971 (Master's Thesis).
b. Successfully complete and report on an Industrial Internship, earning at least 6 credits.
c. Successfully complete a Master's examination.

DEGREE TRACKS:

BIOSTATISTICS Track

Six Required Courses:
STA 6444 Mathematical Probability
STA 6326 Mathematical Statistics
STA 6208 Regression Analysis
STA 6857 Applied Time Series Analysis
STA 5195 Biostatistics
STA 6177 Survival Analysis

At Least Two Elective Courses:
STA 6197 Biostatistics - Longitudinal Data Analysis
STA 6206 Statistical Methods for Environmental Sciences
STA 6207 Applied Statistical Methods
STA 6446 Topics in Probability and Statistics
STA 6707 Analysis of Multivariate Data
STA 5225 Survey Sampling
STA 6505 Analysis of Categorical Data
STA 6106 Statistical Computing
CAP 6673 Machine Learning and Data Mining

CRYPTOLOGY Track

Three courses from:
MAS 5311 Introductory Abstract Algebra 1
MAS 5312 Introductory Abstract Algebra 2
MAA 5228 Introductory Analysis 1
MAA 5229 Introductory Analysis 2
STA 6444 Mathematical Probability
STA 6326 Mathematical Statistics

Three required:
MAD 5474 Introduction to Cryptology and Information Security
MAD 6478 Cryptanalysis
MAD 6607 Coding Theory

At Least Two Elective Courses:
MAT 6933 Elliptic Curves
MAT 6396 Algebraic Curves
MAT 6396 Group Theory
MAD 6477 Cryptography
MAS 6215 Algebraic Number Theory
STA 6326 Mathematical Statistics
MAS 5145 Linear Algebra
COT 5930 Randomized Algorithm
COT 6405 Analysis of Algorithms
CNT 5008 Computer Network
EEL 6532 Information Theory
CIS 6370 Computer Data Security
MAT 6933 Computational Group Theory
MAT 6933 Computational Math
MAT 6396 Commutative Algebra
MAD 6206 Enumerative Combinatorics
MAD 6207 Combinatorics 2
MAD 6307 Graph Theory
CIS 6375 - Distributed Systems Security
CIS 6370 - Computer Data Security
COT 6116 - Secret Sharing Protocols

FINANCIAL MATH Track

Six Required Courses:
MAA 5228 Introductory Analysis 1
STA 6444 Mathematical Probability
STA 6326 Mathematical Statistics
STA 6857 Applied Time Series
STA 6907 Financial Mathematics 1
STA 6446 Stochastic Calculus

At least Two Elective Courses:
STA 6208 Regression Analysis
STA 6908 Financial Mathematics 2
FIN 6406 Financial Management
FIN 6246 Financial Markets
FIN 6525 Portfolio Theory
STA 6207 Applied Statistical Methods
STA 6446 Topics in Stochastic Processes
STA 6106 Statistical Comp
STA 6909 Numerical Methods in Finance
MAA 5229 Introductory Analysis 2
MAS 5145 -- Linear Algebra
MAA 5105 -- Multivariable Analysis
CAP 6673 Machine Learning and Data Mining

* As with all degree programs, the authoritative source for the degree requirements is the University Catalog that was in effect for the academic year in which the student entered the University. The information on this page does not supersede the Catalog.

For information about the PHD, MS, and AMST programs contact:
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Florida Atlantic University
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