

# Mathematics And Statistics Major (BS)

## Degree Requirements

### General Education Requirements (53-57 Hours)

#### Area I - Written Composition (2 Courses, 6 Hours)

- A. 3 hours: EH 101
- B. 3 hours: EH 102

#### Area II - Humanities & Fine Arts (5 Courses, 15 Hours)

No more than six hours from any one discipline.

- A. 3 hours: CA 110
- B. 3 hours from: EH 215, EH 216, EH 225, EH 226, EH 235, EH 236
- C. 3 hours from: ARH 100, ARH 103, ARH 123, ARS 101, DRA 110, MUL 101
- D. 6 hours from: AFR 101, ARH 100, ARH 103, ARH 123, ARH 203, ARS 101, CLA 110, DRA 110, EH 215, EH 216, EH 225, EH 226, EH 235, EH 236, JHS 101, JOU 252, LG 101, LG 102, LG 111, LG 112, LG 121, LG 122, LG 131, LG 132, LG 141, LG 142, LG 151, LG 152, LG 153, LG 171, LG 172, LG 173, LG 201, LG 202, LG 211, LG 212, LG 213, LG 221, LG 222, LG 231, LG 232, LG 234, LG 241, LG 242, LG 251, LG 252, LG 271, LG 272, LG 273, LGS 101, LGS 102, LGS 106, LGS 107, LGS 110, LGS 111, LGS 171, LGS 172, LGS 201, LGS 202, LGS 206, LGS 207, LGS 210, LGS 211, LGS 271, LGS 272, MUL 101, PHL 110, PHL 120, PHL 121, PHL 131, PHL 220, PHL 231, PHL 240, REL 100, REL 200, REL 201

#### Area III – Natural Sciences & Mathematics (3 Courses & Labs, 11-14 Hours)

- A. 3-4 hours from: MA 110, MA 112, MA 113, MA 115, MA 120, MA 125, MA 126, MA 227, MA 237, MA 238
- B. 8-10 hours from: AN 121 & AN 121L, BLY 101 & BLY 101L or BLY 121 & BLY 121L, BLY 102 & BLY 102L or BLY 122 & BLY 122L, BMD 110, BMD 111, CH 101 & CH 101L, CH 103 & CH 103L, CH 131 & CH 131L, CH 132 & CH 132L, GEO 101 & GEO 101L, GEO 102 & GEO 102L, GY 111 & GY 111L, GY 112 & GY 112L, MAS 134 & MAS 134L, PH 101 & PH 101L, PH 104 & PH 104L, PH 114 & PH 114L, PH 115 & PH 115L, PH 201 & PH 201L, PH 202 & PH 202L

#### Area IV – History, Social & Behavioral Sciences (4 Courses, 12 Hours)

No more than six hours from any one discipline.

- A. 3 hours from: HY 101, HY 102, HY 121, HY 122, HY 135, HY 136
- B. 9 hours from: AN 100, AN 101, CA 100, CA 211, CJ 105, ECO 215, ECO 216, GEO 114, GEO 115, GS 101, HY 101, HY 102, HY 121, HY 122, HY 135, HY 136, IS 100, IST 201, NAS 101, PSC 130, PSY 120, PSY 250, SY 109, SY 112

#### Area V (3 Courses, 9-10 Hours)

- A. Foreign Language. 6 hours from any one group:

LG 101 & LG 102, LGS 106 & LGS 107, LGS 110 & LGS 111, LG 111 & LG 112 or proficiency test or LG 113, LG 121 & LG 122, LG 131 & LG 132 or proficiency test or LG 134, LG 141 & LG 142, LG 151 & LG 152 or proficiency test or LG 153, LG 171 & LG 172 or LG 173, LGS 171 & LGS 172

Students may fulfill the foreign language requirement by passing a proficiency test offered by the Department of Modern and Classical Languages at the level equivalent to the second semester of the foreign language sequence, or by passing another test (e.g., AP (Advanced Placement) or CLEP (College Level Examination Program) at the equivalent level). Students who pass a proficiency test at the level equivalent to first semester of the foreign language sequence are required to complete only the second semester and will fulfill the foreign language requirement with 3 credit hours of course work.

- B. Natural Sciences/Math. 3-4 hour lab science or math/stat course from:

AN 121 & AN 121L, BLY 101 & BLY 101L or BLY 121 & BLY 121L, BLY 102 & BLY 102L or BLY 122 & BLY 122L, BMD 110, BMD 111, CH 101 & CH 101L, CH 103 & CH 103L, CH 131 & CH 131L, CH 132 & CH 132L, GEO 101 & GEO 101L, GEO

102 & GEO 102L, GY 111 & GY 111L, GY 112 & GY 112L, MAS 134 & MAS 134L, PH 101 & PH 101L, PH 104 & PH 104L, PH 114 & PH 114L, PH 115 & PH 115L, PH 201 & PH 201L, PH 202 & PH 202L, ST 210, MA 113- 299 (except 201 and 202).

Students must complete a 6 credit hour sequence either in literature (Area II – EH 215 & EH 216, EH 225 & EH 226, or EH 235 & EH 236) or history (Area IV – HY 101 & HY 102 or HY 135 & HY 136 or HY 121 & HY 122).

All undergraduates must complete two designated writing credit (W) courses, at least one of which must be in the student's major or minor.

## Major Requirements (45 Hours)

### Mathematics And Statistics (14 Courses, 45 Hours)

- A. 24 hours: MA 125, MA 126, ST 210 or ST 315, MA 227, MA 237, MA 238, ST 335
- B. 21 hours from C and D below:
- C. 9 hours from: MA 334, MA 335, MA 410, MA 413, MA 414, MA 434, MA 436, MA 437, MA 451, MA 452, MA 458, MA 467, MA 481, MA 490, MA 494, MA 499, ST 415, ST 425, ST 450, ST 460, ST 470, ST 475, ST 480, ST 490, ST 494, ST 499
- D. 12 additional hours from: MA 311, MA 316, MA 318, MA 320, MA 321, MA 332, MA 334, MA 335, MA 354, MA 367, MA 390, MA 410, MA 413, MA 414, MA 434, MA 436, MA 437, MA 451, MA 452, MA 458, MA 467, MA 481, MA 490, MA 494, MA 499, ST 340, ST 345, ST 350, ST 355, ST 415, ST 425, ST 450, ST 460, ST 470, ST 475, ST 480, ST 490, ST 494, ST 499

### Minor Requirements (18-24 Hours)

A minor is required for this degree program

### Notes:

Collaborate with the academic advisor to choose upper division electives appropriate for your educational goals.

## Additional Information

# Graduation Plan

## Mathematics And Statistics (BS): (120 Total Hours)

### First Year - Fall Semester

Course ID	Course Description	Hours
MA 125	Calculus I	4
CAS 100	First Year Experience-College Success	2
EH 101	English Composition I	3
Natural Scie with Lab	**Area III, B	4
Fine Arts	**Area II, C	3
Total Hours		16

**First Year - Spring Semester**

Course ID	Course Description	Hours
MA 126	Calculus II	4
EH 102 or Honors	English Composition II	3
CA 110	Public Speaking	3
Natural Sci with Lab	**Area III, B	4
Total Hours		14

**Second Year - Fall Semester**

Course ID	Course Description	Hours
MA 227	Calculus III	4
ST 315	Applied Probability-Statistics	3
Foreign Language I	**Area II, D	3
Math or Stats Elective	**300 level or higher	3
Minor Course		3
Total Hours		16

**Second Year - Spring Semester**

Course ID	Course Description	Hours
MA 237	Linear Algebra I	3
MA 238	Applied Differential Equations I	3
Foreign Language II	**Area II, D	3
History	**Area IV, A	3
Minor Course		3
Total Hours		15

**Third Year - Fall Semester**

Course ID	Course Description	Hours
ST 335	Applied Regression Analysis	3
Math or Stats Elective	**300 level or higher	3
English Literature	**Area II, B	3
Social/Behavioral Elective	**Area IV, B	3
Minor Course		3
Total Hours		15

**Third Year - Spring Semester**

Course ID	Course Description	Hours
Math or Stats Elective	**300 level or higher	3
Math Elective	**400 level	3
Humanities	**Area II, D	3
Social/Behavioral Elective	**Area IV, B	3
Minor Course		3
Total Hours		15

**Fourth Year - Fall Semester**

Course ID	Course Description	Hours
Math or Stats Elective	**300 level or higher	3
Math Elective	**MA 334 or 400 level	3
Humanities Elective	**Area II, D	3
Social/Behavioral Elective	**Area IV, B	3
Minor Course		3
Total Hours		15

**Fourth Year - Spring Semester**

Course ID	Course Description	Hours
Math Elective	**MA 335 or 400 level	3
Minor Course		3
Minor Course		3
Minor Course/Elective		3
Elective		2
Total Hours		14

**Notes**

\*\*See Degree Requirements

**Department Information**

Department of Mathematics and Statistics website  
<https://www.southalabama.edu/colleges/artsandsci/mathstat/>

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## Developmental Studies

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The courses and academic support through an on-demand tutoring center offered by the developmental studies in mathematics provide students with the opportunity to strengthen the basic mathematical skills necessary to progress to college-level mathematics courses.

Credits earned in courses with a DS prefix do not meet degree requirements within the University. The credits earned do carry institutional, non-degree credit and allow students to qualify for financial aid. Grades earned are computed into the overall GPA in most colleges and hours are counted toward classification (sophomore, etc.). Credits earned in courses with a MTH prefix count as free electives.

### Math Lab Information

#### Location

The Math Technology Lab is located in ASC 1301.

#### Resources:

- 210 computer workstations with Internet access
- Separate testing area and private tutoring rooms
- Study room for one-on-one or group tutoring
- Tutors and instructors available during all operating hours to assist students

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## Undergraduate Studies

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The purpose of the Department of Mathematics and Statistics is to provide a well-rounded program for students majoring in the mathematical sciences and to fulfill the mathematical science needs of students in other fields of study. To this end, the department emphasizes excellence in teaching, and encourages the professional growth of its faculty through study, research, and consulting.

The Department offers a major leading to the Bachelor of Science Degree in Mathematics and Statistics. We also offer a minor in mathematics and a minor in applied statistics. Students pursuing a degree in Mathematics and Statistics also must have a minor in another discipline.

All first-time freshmen must successfully complete CAS 100: First Year Experience as a degree requirement. Students must enroll during their first term at USA, except for summer-entry students who must enroll in the fall semester following entry. ST 335 will fulfill the technology proficiency requirement.

### Where To Begin In The Mathematics Courses?

Students must begin at the proper level and in the proper track in mathematics. Students who lack college level credit in mathematics should take the placement exam at least 48 hours prior to registering for a mathematics course. Students must register online to take the test. Times and days of the test as well as registration information are available at the department website.

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## Accelerated Bachelor's To Master's Program In Mathematics

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### Program Description

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The USA accelerated bachelor's to master's (ABM) in Mathematics provides exceptional undergraduate students the opportunity to earn a bachelor's and master's degree at an accelerated pace in Mathematics. ABM students may count up to 12 credit hours of graduate course work towards both the undergraduate and graduate degrees in approved programs. ABM students typically complete the master's degree within one academic year after completing the undergraduate degree.

Mathematics and Statistics majors are encouraged to apply for the Accelerated Bachelor's to Master's Program in Mathematics (ABM). This program is designed to allow the student to complete the Bachelor's degree in Mathematics and Statistics and the Master's degree in Mathematics in five years.

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### Admission Procedures

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The minimum requirements for admission to the ABM program are:

- Have completed at least 90 credit hours
- Have completed at least 30 credit hours at USA
- Must have at least a 3.0 GPA

Once admitted into the ABM program, students must maintain at least a 3.0 GPA and remain in good standing to stay in the program.

To gain admission, students must complete a degree plan (typically during their junior year) that is approved by the undergraduate coordinator and graduate coordinator. Interested students are encouraged to discuss their plans with the undergraduate coordinator and the graduate coordinator as early as possible.

## Program Procedures

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ABM students may begin taking graduate courses after completing at least 90 hours of undergraduate credit.

Typically, during their senior undergraduate year, students will take 6 graduate credits per semester for 2 semesters (12 hours) while they are also taking undergraduate courses. These 12 graduate hours can count toward both degrees (Bachelor's and Master's) if the courses are completed with grades of at least B. Courses with a grade of C can count toward the undergraduate degree but not the graduate degree. Courses with a grade below C cannot count toward the undergraduate or graduate degree. Graduate courses MA 507 and above can be used to satisfy requirements C and D of the Bachelor of Science requirements.

Upon completing the undergraduate degree, students will apply to the Master's in Mathematics program. ABM students who are in good standing will be accepted into the Master's program.

Completion of the Master of Science in Mathematics requires successful completion of all requirements, including at least 32 graduate credit hours. Graduate credit taken while an undergraduate that is completed with at least the grade of B will be transferred into the Master's program upon acceptance into the program and will apply toward the 32 hours required for the Master of Science degree.

Certain undergraduate courses (such as MA 437, MA 451, and MA 481) are dual listed with graduate courses (such as, MA 537, MA 550, and MA 581, respectively), and students may not receive credit for both of these courses. Students are advised to carefully read the Bulletin descriptions and consult with the undergraduate and graduate coordinators, as appropriate, to select appropriate coursework.

A student who withdraws or is dismissed from the ABM program may not count graduate coursework towards both degrees. Graduate courses for which an undergraduate student did not earn an "A" or "B" grade, may not be counted towards the graduate degree.

An ABM student must be a full time student and must complete all degree requirements for the master's within three semesters of the semester in which they were admitted to the Graduate School. An exception for a fourth semester may be granted where an additional semester is required for final revisions to and submission of a defended thesis. Exceptions to the ABM policy are at the discretion of the Dean of the Graduate School.

To qualify for a baccalaureate degree a student must complete a minimum of 120 approved semester hours, meet the university's general education requirements, meet the requirements of the major, and meet any specific requirements of the college or school. To qualify for a master's degree a student must complete a minimum of 30 semester hours of credit in an approved program of study.

## Graduate Studies

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A Master of Science degree in Mathematics is offered by the Department of Mathematics and Statistics. The program has been designed to meet the varied needs and goals of most students seeking advanced degrees in mathematics. The course of study accommodates students interested in traditional and modern mathematics, applied mathematics, statistics, and computer science.

## Requirements For Admission

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Students are admitted each semester. The following criteria supplement the Graduate School requirements.

### Regular Admission

1. A bachelor's degree in mathematics or in a mathematics-related field from an accredited institution of higher education with a concentration of upper-level mathematics courses including a sequence in advanced calculus or real analysis.

2. A minimum GPA of at least a 3.0 on all undergraduate work. In exceptional cases, applicants may be considered with at least a 2.5 GPA on all undergraduate work, or at least a 2.75 GPA on the last 60 hours of undergraduate work.
3. Submission of scores on the General Test of the Graduate Record Examination. A minimum combined score of 297 on the verbal and quantitative sections or a minimum score of 148 on the quantitative section (without regard to the score on the verbal section). An advanced degree or other standardized test score may be considered in lieu of a GRE score.
4. English proficiency requirement for international applicants:
  - Minimum TOEFL score of 71 OR
  - Minimum IELTS score of 6 OR
  - Minimum iTEP score 3.7 OR
  - Minimum Pearsons (PTE Academic) score 48Applicants who hold a bachelor's degree from an accredited U.S. institution are not required to submit test scores.
5. Three original letters of recommendation written by persons familiar with the applicant's qualifications and ability to undertake the proposed course of study are required.

### **Non-Degree Admission**

Applicants who do not meet all the conditions for admission or who are not interested in earning a graduate degree may apply for non-degree admission. Adequate undergraduate preparation in mathematics which indicates a reasonable chance of success in graduate mathematics courses is required for non-degree admission. After admission, permission of the department graduate coordinator is required for each course taken. In cases where undergraduate preparation is inadequate for a particular graduate course, a plan of study including additional undergraduate courses can be worked out in consultation with the graduate coordinator.

### **Graduate Assistantships**

Graduate students holding assistantships are usually assigned duties such as tutoring or supervising recitation sections in the Department of Mathematics and Statistics. Awards are normally made for the academic year, but positions occasionally become available during the year. An assistantship application can be obtained from the Graduate Coordinator in the department and on-line. Three letters of recommendation sent directly to the Graduate Coordinator are required. Graduate Assistants are required to enroll in MA 592 (Seminar) each semester.

### **Policies And Procedures**

The document "Department Policies and Procedures for the MS Degree Program in Mathematics" is posted on the departmental website. It contains details concerning advising, the comprehensive examination, graduate assistant duties, student meetings and colloquia.