

DEPARTMENT OF MATHEMATICS

As one of the largest instructional units in the University, the Department of Mathematics offers courses in Mathematics (MATH), **the Bachelor of Science (B.S.) Degree in Mathematics, the Master of Science (M.S.) Degree in Mathematics, and a minor in Mathematics for students majoring in other academic disciplines at the University.** The Department provides major support to the overall undergraduate curriculum at Texas Southern University since every undergraduate degree or program of study requires the completion of, at least, three semester credit hours in Mathematics for graduation. Instructional facilities and the Department Office (Room 111K) are located on the first floor of the Science Building. Faculty members are housed on the first floor of the Science Building.

Students who are interested in the Master of Science Degree in Mathematics should consult the Graduate School Bulletin of Texas Southern University for detailed information.

Students wishing to pursue the B.S. Degree in Mathematics are required to declare a minor in a second academic discipline. All courses completed that are designated for the minor selected must be completed with grades of “C” or better, where grades of “C-” are unacceptable. In selecting a minor, majors should seek detailed advisement from their designated advisors because the selection of a minor having representative courses in the core curriculum of study could impact the total number of credits required. In no case will students qualify for graduation at the undergraduate level with fewer than 120 semester credit hours satisfactorily completed.

The mission of the Department of Mathematics is to make all students who matriculate through Texas Southern University aware of the role that Mathematics plays in the modern world and to allow them to develop sufficient skills in utilizing the processes and techniques of Mathematics to pursue their chosen fields of study, as well as to deal with mathematical processes on a daily basis. In the realization of this mission, students are prepared for a variety of careers, for negotiating the rigors of various curricula of study that are heavily dependent upon the understanding of mathematical processes, and for graduate study and research.

Requirements for both the B.S. in Mathematics and the minor in Mathematics are summarized below. As is the case for courses designated in the minor in other disciplines selected by students pursuing the B.S. in Mathematics, **grades of “C” or better, where grades of “C-” are unacceptable, are required in all Mathematics courses designated for the B.S. in Mathematics or major. This is also the case for students in other disciplines seeking the minor in Mathematics.** Students wishing to pursue either a major (B.S.) or minor in Mathematics must first be admitted to the University, must satisfy ASSET requirements, must eradicate deficiencies assessed at the time of admission through the General University Academic Center (GUAC), and must petition the Department for admission as ASSET requirements are completed. Once admitted to the Department, students are each assigned an official advisor who must be consulted on a semesterly or term basis for schedule approval and status verification for progress toward graduation. **An exit examination is required of all graduating seniors pursuing the B.S. in Mathematics.**

Individuals interested in seeking certification for teaching Mathematics in the public schools of Texas should contact the Teacher Certification Officer in the College of Education at Texas Southern University for application instructions. Mathematics courses used in the certification process must be approved through the Department.

For the minor in Mathematics, 24 semester credit hours are required through enrollment in the following courses: MATH 241 (4 credits); MATH 242 (4 credits); MATH 243 (4 credits); MATH 250 (3 credits); MATH 331 (3 credits); either MATH 251 (3 credits) or MATH 439 (3 credits); and one additional 300-Level or 400-Level Math course. The minimum grade requirement for each of these courses is referenced above.

In summary, students must first gain admission to the University; must meet their ASSET responsibility; and must petition the Department for admission as ASSET requirements are met.

Upon admission, each student is assigned an official advisor, and an exit examination is required of graduating seniors. For further information, students should contact the Department at (713)-313-7002.

LISTING OF FACULTY IN THE DEPARTMENT

<p>Bell, Della D. Professor B.S., Lamar University M.Ed., Ph.D., University of Texas at Austin</p>	<p>Holmes, Roderick Assistant Professor B.S., M.S., Texas Southern University Ph.D., University of Houston</p>
<p>Chilakamarri, Kiran B. Associate Professor Ph.D., Ohio State University</p>	<p>Jenkins, Herman J. Assistant Professor B.A., M.S., Texas Southern University</p>
<p>Clarkson, Llayron L. Joseph A. Pierce Professor B.A., Texas State University M.S., Texas Southern University Ph.D., University of Texas at Austin</p>	<p>Nehs, Robert M. Associate Professor B.S., Marquette University M.S., Rice University Ph.D., University of Houston</p>
<p>Ekwo, Maurice Visiting Professor B.S., Texas Southern University M.S. Stephen F. Austin State University Ph.D., Oklahoma State University</p>	<p>Obot, Victor Professor B.S., Eastern Mennonite College M.S., Wright State University Ph.D., University of Tulsa</p>
<p>Evans, Joan Instructor B.S. Texas Southern University M.S. Texas Southern University Ed.D. Texas Southern University</p>	<p>Taylor, Willie E. Professor B.S., M.S., Prairie View A & M University Ph.D., University of Houston</p>
<p>Ginn, James E. Professor A.B., Clark College M.A., Atlanta University Ph.D., Texas A & M University</p>	<p>Wardlaw, Alvin Associate Professor B.S., Morehouse College M.S., Atlanta University</p>
<p>Glenn, Nancy Assistant Professor B.S. in Math, University of South Carolina B.S. in Statistics, University of South Carolina Ph.D. Rice University</p>	<p>Wu, Tong Instructor B.S., Harbin Science & Technology University M.S., Harbin Institute of Technology M.S., Texas Southern University</p>
<p>Guha, Shyamal K. Associate Professor B.Sc., Indian Institute of Technology M.A., University of California at Berkeley Ph.D., St. Louis University</p>	

MATH 243	Calculus and Analytic Geometry III (4) Sequences, infinite series, conic sections, polar coordinates, two-dimensional and three-dimensional vectors, parametric equations, partial differentiation, and multiple integrals. Four hours of lecture per week. Prerequisite: MATH 242.
MATH 250	Linear Algebra (3) A first course in linear algebra designed to provide a minimal foundation in matrix theory, vector spaces, determinants, and linear transformations. Three hours of lecture per week. Prerequisite: MATH 241.
MATH 251	Differential Equations (3) Important methods of solution of ordinary differential equations of the first order and of higher orders with applications to geometry and physics. Three hours of lecture per week. Prerequisites: MATH 242 and MATH 243. (MATH 243 may be taken concurrently.)
MATH 331	Logic, Sets, and Functions (3) Transitional mathematics course toward the study of advanced mathematics. Various topics in the foundations of mathematics discussed. Three hours of lecture per week. Prerequisite: MATH 241.
MATH 335	Foundations of Geometry (3) Logic and postulates relating to geometries. Modern plan geometry as developed from Euclidean geometry, measurement, and metric system. Properties of geometric figures, congruence, theory of parallel lines, and noneuclidian geometry. Three hours of lecture per week. Prerequisite: MATH 241.
MATH 336	Foundations of Algebra (3) Introduction to mathematical systems such as groups, rings, and fields. Three hours of lecture per week. Prerequisites: MATH 243 and MATH 331.
MATH 345	Applied Mathematics and Statistics for Technology (3) Selected topics in applied differential equations (including transform techniques), linear programming, numerical methods, and statistics with emphasis on applications to the solution of problems in technology. Three hours of lecture per week. Prerequisite: MATH 242.
MATH 375	Linear Mathematics (3) Various topics involving linear space methods discussed, including linear difference equations, LaPlace transforms, and linear differential operators. Three hours of lecture per week. Prerequisites: MATH 243 and MATH 250.
MATH 376	Applied Mathematical Analysis (3) Vector analysis; algebra and geometry of vectors; vector differential and integral calculus; theorems of Green, Gauss, and Stokes. Three hours of lecture per week. Prerequisite: MATH 243.
MATH 430	The History of Mathematics (3) General view of the development of the elementary branches of mathematics; growth of higher mathematics in the eighteenth and nineteenth centuries. Three hours of lecture per week. Prerequisite: Twelve credits of college mathematics.
MATH 431	Uses of Computers in Mathematics (3) Role and nature of computers as tools in problem solving; impact of computers on mathematics; applications of computers to modeling and simulating mathematical situations. Three hours of lecture per week. Prerequisites: MATH 241 and MATH 242 or consent of the instructor.
MATH 433	Concepts and Structure of Mathematics (3) Structure of the number system, elements of set theory, properties of real numbers, and basic concepts of mathematical systems. Presented for nonmajors. Three hours of lecture per week. Prerequisite: Consent of the instructor.

MATH 437	A Survey of Mathematical Ideas (3) Designed to review major topics taught in the secondary school and supplement the technical material of other mathematics courses required for teacher preparation and certification. The use of Technology is included along with national and state mathematics standards and (EXCET) - TEXES competencies. Three hours of lecture per week. Prerequisite: Math 243 or consent of the instructor. Formerly known as Contemporary Mathematics and its Applications.
MATH 439	Advanced Calculus I (3) The real number system; elementary point set theory; sequences and series; continuity; differentiation and integration. Three hours of lecture per week. Prerequisites: MATH 243 and MATH 331.
MATH 440	Advanced Calculus II (3) Functions of several variables, including partial derivatives, multiple integrals, and mapping from Euclidean m-space to Euclidean n-space. Three hours of lecture per week. Prerequisite: MATH 439 or consent of the instructor.
MATH 460	Introduction to Complex Analysis (3) Complex numbers and complex geometry; limits, continuity, derivatives, and the Cauchy-Riemann equations; analytic and harmonic functions; Cauchy's Integral Theorem and its consequences. Three hours of lecture per week. Prerequisites: MATH 243 and MATH 331.
MATH 462	Introduction to Topology (3) Topics include metric spaces, connectedness, and compactness. The topology of Euclidean spaces discussed in detail as well as its generalization to nonmetric topological spaces. Three hours of lecture per week. Prerequisites: MATH 243 and MATH 331.
MATH 471	Topics in Mathematics I (3) New developments and trends in mathematics discussed. Three hours of lecture per week. Prerequisite: Consent of the instructor.
MATH 472	Topics in Mathematics II (3) Continuation of MATH 471. Three hours of lecture per week. Prerequisite: Consent of the instructor.
MATH 473	Probability and Statistics I (3) Introduction to probability and statistical inference making use of the calculus developed in MATH 241 and MATH 242. Three hours of lecture per week. Prerequisite: MATH 242.
MATH 474	Probability and Statistics II (3) Moments of distributions and Stieltjes integral; joint density functions; conditional means; moment generating functions; sequences of random variables; distribution theory; and hypothesis testing. Three hours of lecture per week. Prerequisite: MATH 473.
MATH 475	Introduction to Modern Algebra (3) Group theory; Lagrange's Theorem; Isomorphism Theorem; Cayley's Theorem; rings and fields. Three hours of lecture per week. Prerequisite: MATH 336 or consent of the instructor.
MATH 490	Independent Study: Undergraduate (3) Intensive study of a topic in mathematics under the direction of a faculty member. Prerequisites: Senior standing and consent of the instructor.
MATH 499	Seminar (3) Various topics in mathematics discussed. Three hours of lecture per week. Prerequisite: Consent of the instructor.

Bachelor of Science Degree in Mathematics
Four Year Degree Plan - Total Credits: 123

First Year			
First Semester		Second Semester	
ENG* 131 Freshman English I	3	ENG 132 Freshman English II	3
MATH 241** Calculus & Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry II	4
BIOL 143 Survey of Life Sciences or	4	GEOLOGY 141 Intro. To the Earth or	4
CHEM 111 General Chemistry I Lab		CHEM 112 General Chemistry II Lab	
CHEM 131 General Chemistry I Lec.		CHEM 132 General Chemistry II Lec.	
SC 135 or 136 Business and Professional Communication or public address	3	Visual and Performing Arts***	3
PE (select from 100 level courses)	1	PE (select from 100 level courses)	1
	15 hrs		15 hrs

Second Year			
Third Semester		Fourth Semester	
ENG 2xx Upper level English	3	MATH 250 Linear Algebra	3
MATH 243 Calculus & Analytic Geometry III	4	HIST 232 Social & Political History of the United States since 1877	3
HIST 231 Social & Political History of the United States to 1877	3	POL SCI 232 American Political Systems II	3
POL SCI 231 American Political Systems I	3	CS 117 Computer Science II Lec	3
CS 116 Computer Science I Lec	3	Course in Minor Field	3
	16 hrs		15 hrs

Third Year			
Fifth Semester		Sixth Semester	
MATH 331 Logic, Sets, & Functions	3	MATH 251 Differential Equations	3
Foreign Language or CS Elective	3	MATH 473 Probability and Statistics I	3
HEALTH Ed 233 History and Principles of Health	2	Foreign Language or CS Elective	3
PHYS 116 University Physics I Lab	1	PHYS 217 University Physics II Lab	1
PHYS 152 University Physics I Lec	3	PHYS 251 University Physics II Lec	3
Course in Minor Field	3	Course in Minor Field	3
	15 hrs		16 hrs

Fourth Year			
Seventh Semester		Eighth Semester	
MATH 439 Advanced Calculus I	3	MATH (6hrs. selected from upper division courses)	6
MATH Elective (3hrs. upper division course)	3	Course in Minor Field	3
PHYS 218 University Physics III Lab	1	Course in Minor Field	3
PHYS 252 University Physics III Lec	3	Course in Minor Field	3
Course in Minor Field	3		
Social and Behavioral Sci****	3		
	16 hrs		15 hrs

* Pending acceptable scores on English and Math Placement Exams.

** Pending sufficient preparation in pre-calculus level math courses.

***Select one of the following THC 130, THC 231, Music 131, Music 239, Art 131 or Art 132.

****Select one of the following PSY 131; SOC 157, 158, 221, and 238; ECON 231, OR ECON 232

Note: Persons interested in receiving a Bachelor of Science Degree in Math and Certification in teaching Math, Grades 8-12 see below.

Students interested in teaching mathematics grades 8-12 may substitute courses required by the College of Education for teacher preparation and certification in place of "Courses in Minor Field". These courses include: EDCI 310, EDCI 328, EDCI 339, EDCI 340, EDCI 350, EDCI 464, RDG 400 and RDG 402.

Students interested in teaching may also take Physics 213, 237 and Physics 214, 238 in lieu of Physics 116, 152, Physics 217, 251 and Physics 218, 252.

Bachelor of Science Degree in Mathematics
Five Year Degree Plan - Total Credits: 123

First Year			
First Semester		Second Semester	
ENG* 131 Freshman English I	3	ENG 132 Freshman English II	3
MATH** 241 Calculus and Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry II	4
BIOL 143 Survey of Life Sciences or	4	GEOLOGY 141 Intro. To the Earth or	4
CHEM 111 General Chemistry I Lab		CHEM 112 General Chemistry II Lab	
CHEM 131 General Chemistry I Lec.		CHEM 132 General Chemistry II Lec	
PE (select from 100 level courses)	1	PE (select from 100 level courses)	1
	12 hrs		12 hrs
Second Year			
Third Semester		Fourth Semester	
ENG (any 200 series)	3	MATH 250 Linear Algebra	3
MATH 243 Calculus & Analytic Geometry III	4	HIST 232 Social & Political History of the United States since 1877	3
HIST 231 Social & Political History of the United States to 1877	3	CS 117 Computer Science II Lec	3
CS 116 Computer Science I Lec	3	Course in Minor Field	3
	13 hrs		12 hrs
Third Year			
Fifth Semester		Sixth Semester	
MATH 331 Logic, Sets, & Functions	3	MATH 251 Differential Equations	3
Foreign Language or CS Elective	3	Foreign Language or CS Elective	3
Health Ed 233 History & Principles of Health	2	PHYS 217 University Physics II Lab	1
PHYS 116 University Physics I Lab	1	PHYS 251 University Physics II Lec	3
PHYS 152 University Physics I Lec	3	Course in Minor Field	3
	12 hrs		13 hrs
Fourth year			
Seventh Semester		Eighth Semester	
MATH 439 Advanced Calculus I	3	MATH (6hrs. selected from upper division courses)	6
MATH Elective (3hrs. selected from upper division course)	3	Course in Minor Field	3
PHYS 218 University Physics III Lab	1	Course in Minor Field	3
PHYS 252 University Physics III Lec	3		
Course in Minor Field	3		
	13 hrs		12 hrs
Fifth Year			
Ninth Semester		Tenth Semester	
SC 135 or 136 Business and Professional Communication or public address	3	Visual and Performing Arts***	3
POL SCI 231 American Political Systems I	3	POL SCI 232 American Political Systems II	3
Course in Minor Field	3	Course in Minor Field	3
Social & Behavioral Sci****	3	MATH 473 Probability and Statistics I	3
	12 hrs		12 hrs

* Pending acceptable scores on English and Math Placement Exams.

** Pending sufficient preparation in pre-calculus level math courses.

***Select one of the following THC 130, THC 231, Music 131, Music 239, Art 131 or Art 132.

****Select one of the following PSY 131; SOC 157, 158, 221, and 238; ECON 231, OR ECON 232

Note: Persons interested in receiving a Bachelor of Science Degree in Math and Certification in teaching Math, Grades 8-12 see below.

Students interested in teaching mathematics grades 8-12 may substitute courses required by the College of Education for teacher preparation and certification in place of "Courses in Minor Field". These courses include: EDCI 310, EDCI 328, EDCI 339, EDCI 340, EDCI 350, EDCI 464, RDG 400 and RDG 402.

Students interested in teaching may also take Physics 213, 237 and Physics 214, 238 in lieu of Physics 116, 152, Physics 217, 251 and Physics 218, 252.

Bachelor of Science Degree in Mathematics
Six Year Degree Plan - Total Credits: 123

First year			
First Semester		Second Semester	
ENG* 131 Freshman English I	3	ENG 132 Freshman English II	3
MATH 241** Calculus & Analytic Geometry I	4	MATH 242 Calculus & Analytic Geometry II	4
BIOL 143 Survey of Life Sciences or	4	GEOLOGY 141 Intro. To the Earth or	4
CHEM 111 General Chemistry I Lab		CHEM 112 General Chemistry II Lab	
CHEM 131 General Chemistry I Lec.		CHEM 132 General Chemistry II Lec.	
	11 hrs		11 hrs
Second Year			
Third Semester		Fourth Semester	
ENG 2xx Upper level English	3	MATH 250 Linear Algebra	3
MATH 243 Calculus & Analytic Geometry III	4	CS 117 Computer Science II Lec	3
CS 116 Computer Science I Lec	3	Course in Minor Field	3
	10 hrs		9 hrs
Third Year			
Fifth Semester		Sixth Semester	
MATH 331 Logic, Sets, & Functions	3	MATH 251 Differential Equations	3
HEALTH Ed 233 History and Principles of Health	2	PHYS 217 University Physics II Lab	1
PHYS 116 University Physics I Lab	1	PHYS 251 University Physics II Lec	3
PHYS 152 University Physics I Lec	3	Course in Minor Field	3
	9 hrs		10 hrs
Fourth Year			
Seventh Semester		Eighth Semester	
MATH 439 Advanced Calculus I	3	MATH (6 hrs. selected from upper division courses)	6
MATH Elective (3hrs. upper division course)	3	Course in Minor Field	3
PHYS 218 University Physics III Lab	1	PE (select from 100 level courses)	1
PHYS 252 University Physics III Lec	3		
PE (select from 100 level courses)	1		
	11 hrs		10 hrs
Fifth Year			
Ninth Semester		Tenth Semester	
SC 135 or 136 Business and Professional Communication or public address	3	Visual and Performing Arts***	3
POL SCI 231 American Political Systems I	3	POL SCI 232 American Political Systems II	3
Course in Minor Field	3	MATH 473 Probability and Statistics I	3
	9 hrs		9 hrs
Sixth Year			
Eleventh Semester		Twelfth Semester	
HIST 231 Social & Political History of the United States to 1877	3	HIST 232 Social & Political History of the United States since 1877	3
Foreign Language or	3	Foreign Language or	3
CS Elective		CS Elective	
Course in Minor Field	3	Course in Minor Field	3
Social & Behavioral Science****	3	Course in Minor Field	3
	12 hrs		12 hrs

* Pending acceptable scores on English and Math Placement Exams.

** Pending sufficient preparation in pre-calculus level math courses.

***Select one of the following THC 130, THC 231, Music 131, Music 239, Art 131 or Art 132.

****Select one of the following PSY 131; SOC 157, 158, 221, and 238; ECON 231, OR ECON 232

Note: Persons interested in receiving a Bachelor of Science Degree in Math and Certification in teaching Math, Grades 8-12 see below.

Students interested in teaching mathematics grades 8-12 may substitute courses required by the College of Education for teacher preparation and certification in place of "Courses in Minor Field". These courses include: EDCI 310, EDCI 328, EDCI 339, EDCI 340, EDCI 350, EDCI 464, RDG 400 and RDG 402.

Students interested in teaching may also take Physics 213, 237 and Physics 214, 238 in lieu of Physics 116, 152, Physics 217, 251 and Physics 218, 252.