



**Bachelor of Science Degree  
With major in  
Applied Mathematics  
Department of Computer and Mathematical Sciences  
University of Houston-Downtown**

The Applied Mathematics program at UH-Downtown offer students sound training designed to be consistent with expanding uses of mathematical techniques in business and industry. The program provides broad-based studies in the mathematical sciences, an approved university minor, and sustained development of written and oral communications skills. The mathematics curriculum is structured to prepare the student to develop and use analytical skills, to master mathematical techniques required in related fields of application, and to enter the employment market with relevant and proficient mathematical tools for areas such as industrial mathematics, applied statistics, actuarial mathematics, computer analysis, programming for various types of applications, the pursuit of graduate work in the mathematical sciences or preparation for teacher certification.

The degree requires a minimum of 120 semester credit hours with at least six hours of MATH at the 4000-level. No grade of “D” in any course in the Department of Computer and Mathematical Sciences may be applied toward satisfying the requirements of any degree in the department. Any course substitution must be approved by the department chair. The format of the degree is given below in five sections: General Education Requirements, Mathematical Sciences Requirements, Computer Science Requirements, Minor, and Electives.

**DEGREE REQUIREMENTS**

**A. General Education Requirements (49 hours)**

**i. Common Core Requirements (46 hours)**

ENG 1301 and 1302 – Composition I, II

ENG 23XX – Any literature course

COMM (Approved 3 hours<sup>+</sup>)

Fine Arts (Approved 3 hours selected from ART, DRA, MUS or other fine arts discipline)

HIST (Approved 6 hours<sup>++</sup>)

POLS 2303 and 2304 – U.S. Government I, II

Lab Sciences (BIOL 1301-1101/1302-1102, CHEM 1307-1107/1308-1108, PHYS 1307-1107/1308-1108, or other approved 8 hours in the same natural science area)

Social/Behavioral Sciences (Approved 3 hours in ANTH, CJ, ECO, GEOG, PSY, SOC or other human behavior discipline)

Mathematics (MATH 2405 is used here)

Computer Literacy (CS 1410 is used here)

<sup>+</sup>Selected from COMM 1301,1303,1304,1305,3302,3304,3306 or other approved course.

<sup>++</sup>Selected from HIST 1305, 1306, 2303, 2309 or other approved course.

**ii. Writing Skills Requirement (3 hours)**

ENG 3302 – Business and Technical Report Writing

### iii. Writing Proficiency Examination

Writing Proficiency Exam (WPE must be taken and passed after completion of 60 credit hours and before completion of 75 hours. Transfer students with more than 75 hours must attempt the exam during their first semester at UHD.)

## B. Mathematical Sciences Requirements (44 hours<sup>+</sup>)

### i. Mathematical Sciences Core (38 hours<sup>+</sup>)

MATH 2301 – Intro. to Computational Mathematics	MATH 2307 – Linear Algebra
MATH 2401 – Calculus I	MATH 2402 – Calculus II
MATH 2403 – Calculus III	MATH 2405 – Discrete Mathematics <sup>+</sup>
MATH 3301 – Differential Equations	MATH 3302 – Probability & Statistics
MATH 3306 – Intro. to Modern Algebra	MATH 3307 – Intro. to Real Analysis
MATH 3308 – Numerical Methods	
MATH 4294 – Senior Seminar (must be taken before either 4395 or W-course)	
Math 4395 or an approved W-course*	

<sup>+</sup>Math 2405 is counted in Section A-Common Core Requirements.

\*To satisfy Integrative Experience. Based on their performance in Math 4294, students are required to participate in Math 4395 or assigned an approved writing course in the major. The approved writing courses are Math 4301 (Advanced Numerical Methods for Science and Engineering), Math 4304 (Methods of Applied Mathematics), Math 4312 (History of Applied Mathematics), and Math 4315 (Mathematical Modeling).

### ii. Mathematical Sciences Electives (6 hours)

Six hours of additional upper level mathematics courses of which at least three hours must be at the 4000 level, chosen from the following: MATH 3311 (Geometry), MATH 4301 (Advanced Numerical Methods for Science and Engineering), MATH 4302 (Advanced Multivariable Calculus), MATH 4304 (Methods of Applied Mathematics), MATH 4305 (Complex Variables with Applications), MATH 4315 (Mathematical Modeling). Students interested in graduate studies in applied mathematics are encouraged to choose MATH 4304 and MATH 4305 as their mathematical sciences electives.

## C. Computer Science Requirements<sup>+</sup>

CS 1410<sup>+</sup> – CS I – Introduction to Computer Science with C++

<sup>+</sup>CS 1410 is counted in Section A-Common Core Requirements.

## D. Minor (18 hours minimum)

Any university approved minor may be chosen to satisfy this requirement. Students with an interest in statistics are encouraged to minor in Applied Statistics, and students with an interest in computer analysis, or programming for various types of applications are encouraged to minor in Computer Science.

## E. Free Electives: (Enough hours to complete a minimum of 120 hours total)

Students interested in graduate study in mathematics are encouraged to choose Math 3312 (Set Theory) and Math 4302 (Advanced Multivariable Calculus) as electives. Also, students interested in computer science are encouraged to choose Math 4333 (Theory and Application of Neural Nets), Math 4334 (Fuzzy Logic: Theory and Applications) and MATH 4336 (Neuro-Fuzzy Systems) as electives.

**Students seeking Secondary Education Certification\*\* (33 hours) should complete a formal application in the Urban Education Department, must meet with a UE advisor for specific information about certification, and may replace sections D with:**

Pre-block courses	Block I	Block II	Block III
SOSE 3306	SED 3301	SED 3302	READ 4321
ETC 3301	SED 3312	SED 3307	SED 4301
PED 3301			SED 4302
READ 3309			

(The courses in each block must be taken concurrently)