



College of Sciences and Technology

CST Official Graduate Handbook

2021-2022

Updated November 2021

WELCOME!

Welcome to the College of Sciences and Technology Graduate Programs at the University of Houston – Downtown (UHD). CST currently has one Graduate program, Master of Science in Data Analytics. This Handbook is intended to serve as a resource outlining all program procedures for all active graduate students within the college.

CST Administration:

Ermelinda DeLaVina, PhD, Interim Dean

Youn-Sha Chan PhD, Interim Associate Dean N723, 713-221-8019

Angel Griffin M.Ed, Assistant Director of Graduate Studies N747, 713-221-5702

CST GRADUATE PROCEDURES

Admission Process

Graduate Admissions procedures are summarized in UHD Policy 03.B.24 (Admission of Graduate Students). All candidates must submit an official transcript from an accredited institution which awarded an undergraduate degree.

The College of Sciences and Technology Graduate Studies Admissions Committee will evaluate candidates using a matrix based on required application materials. The Program Director or Assistant Director of Graduate Studies of the respective graduate program will notify prospective students, by email, of the committee's decision. Students may be admitted conditionally at the discretion of the committee. Conditionally admitted students will be advised of the specific stipulations and the conditions necessary to remove the "conditionally admitted" classification. An applicant can appeal an admissions decision by completing the [CST Graduate Admissions Appeal Form](#) along with documentation.

NON-U.S. resident students holding a visa should complete the Application for International Admission. International students should contact the International Students Office at 713-221-8048 or internationaladmissions@uhd.edu (03.B.24).

Transferring Credit from Other Programs

For master degree granting programs, students may transfer from another university no more than six semester credit hours (SCHs) of coursework with grades of B or higher and only with the approval of the graduate program's Graduate Director. For certificate granting programs, students may transfer from another university no more than three semester credit hours (SCHs) of coursework with grades of B or higher and only with the approval of the graduate program's Graduate Director. Students who would like to request previous completed graduate courses towards any of the graduate programs will need to complete the [Graduate Transfer Credit Petition form](#). A syllabus and description of the course as well as an explanation as to why the course qualifies for transfer in the particular program must accompany the form. This form must be submitted no later than one full semester after admission into desired program. The Graduate Studies committee will review the request and once a decision is made, students will be contacted via gator email.

If a student wishes to take coursework at another university in the midst of completing any of the student must receive approval *before* registering for the intended coursework at another university. The Graduate Transfer Credit Petition along with a syllabus, course description and explanation as to why the course is applicable as a transfer course must be submitted beforehand as a part of the approval process. Accepted transfer course grades are not calculated into the University of Houston Downtown Graduate GPA.

Residency Information

Prospective students born outside the United States will need to contact the International Admissions office to verify required documents needed to be admitted to the University. Students born outside of Texas may need to provide information regarding employment in the state in order to determine qualification for in-state tuition. <https://www.uhd.edu/registrar/students/residency-profile-updates/Pages/registrar-residency.aspx>

Orientation

Applicants admitted to the graduate program will be instructed to attend a New Student Orientation. Attending Orientation will include introducing students to the expectations of completing a graduate program within the College of Sciences and Technology.

Advising

CST graduate students are encouraged to meet with their program's Assistant Director of Graduate Studies before registering for classes or before beginning their first semester of coursework. The Assistant Graduate Director will be available to help discuss academic goals and complete a degree plan. It is recommended that all graduate students meet with the Assistant Director of Graduate Studies at least once per academic year to review degree progress. In addition, any appeals will go through the Director of Graduate Studies.

Registration

Upon admission, students are expected to enroll in at least one course in the accepted semester. New students will be able to register for classes online with their myUHD2.0 account. At least 2 weeks before registration opens, each active student will receive an advising email with the applicable course approvals. The Assistant Director of Graduate Studies will enter the necessary approvals in the registration system so the student can register online. To register online:

- Go to: <https://www.uhd.edu/myuhd/Pages/Student-Login.aspx>
- Select "Class Schedule & E-Syllabi" on the left to review classes and register for approved courses.

Students must contact the Graduate Studies office immediately if any difficulties with registration arises.

Enrollment

Full-time enrollment for CST graduate students for the fall and spring semesters is 9 SCHs. Part-time enrollment is less than 9 SCHs. International students are required to take 9 SCHs. If a student does not enroll in their initial admitted semester, the student must submit a new Apply Texas application for the semester in which they are ready to enroll.

Minimum Grade Point Average for Enrolled Graduate Students

According to University policy (PS 03.B.04) and conventional wisdom, "Graduate programs are professional degrees that require a sustained level of high-quality academic achievement. Consequently, students who matriculate in graduate programs are held to higher standards than students in undergraduate programs." Thus, while enrolled in any CST graduate programs, students must maintain a minimum grade point average (GPA) of 3.0 to remain in good standing. All attempted graduate hours at UHD are included in overall GPA. An enrolled student whose graduate-degree program GPA falls below 3.0 is placed on initial academic probation (PS 03B07 §3.1.1)

Academic Probation, Suspension and Dismissal

The University policy for Probation, Suspension and Dismissal is outlined in PS 03.B.07. The SCHs for courses in which a “C” or lower grade was earned will not automatically be counted towards graduation. Students in any CST graduate program are allowed to earn no more than two grades of “C” towards graduation as long as the student’s overall GPA remains in good standing (3.0 GPA or higher). Please also note this rule does not apply to the two foundation courses (CS 5301 and STAT 5301). Students must earn a grade of B or better in the foundation courses in order to remain in any graduate program that requires these courses. In any case if a graduate student’s GPA falls below 3.0, the student will be placed on academic probation. Once a student is placed on probation, the student must continue to earn an acceptable term GPA (3.0 or higher).

Two consecutive terms with a GPA below 3.0, constitutes grounds for dismissal from any CST Graduate degree or certificate program.

Below average work (grades of “D” or “F”) is not acceptable and constitutes grounds for dismissal from any CST Graduate degree or certificate program. Graduate students have the right to appeal their academic standing by following the Appeals Process.

Appeals Process

In cases where a student wishes to appeal a probation or dismissal, the student must submit the [CST Graduate Probation, Suspension and Dismissal Appeal Form](#). Appeals should be filed within one calendar year.

A student appeal of a course grade should follow as closely as possible section 4.5 of the Grading System policy (PS 03.B.04). According to section 4.5.4, a student may file an appeal by proceeding in the following sequence: (1) appeal first to the course instructor, (2) if the appeal is not resolved to the student’s satisfaction, then appeal to the chair of the department in which that course is housed, (3) the final level of appeal would be to the dean of the college in which that course is housed.

Students who appeal must provide clear, compelling case demonstrating their potential for academic success.

Probation status or other complaints other than a grade in a course, should be directed to the Assistant Director of Graduate Studies.

Incomplete Grades

An incomplete course grade (“I”) is given only when an unforeseen emergency prevents a student from completing the course work and only with the instructor’s approval. According to the Grading System policy (PS 03.B.04 §3.4 to 3.4.3), “I” grades are given when the majority of the coursework is completed. A grade of “I” will be changed to a passing grade if the missing work is completed satisfactorily by the deadline set by the instructor, but no later than the end of the long semester immediately following the term in which the “I” grade was received. An incomplete grade that is not removed by this deadline becomes an “F,” thereby constituting immediate grounds for expulsion from a program.

S/U Grade Policy

In some instances where natural disasters occurred or other unforeseen circumstances that has affected the community as a whole, the university may implement a policy where a student can either receive a grade of “S” for Satisfactory or “U” for Unsatisfactory.

- S: Satisfactory = B or above, no effect on GPA, hours count toward graduation
- U: Unsatisfactory = C, D, or F, no effect on GPA, hours do not count toward graduation. Grades of "U" cannot by themselves be used as a basis to dismiss.

NOTE: Any student wishing to utilize this option in an applicable semester should reach out to the Graduate Advisor in order to review pros and cons and how will affect graduation plan.

The S/U option for students does not require any instructor to adjust any of their grading expectations, assignments, or, most importantly, course learning outcomes. The S/U grade will be determined based on the letter grade that is assigned to a student at the end of the semester.

The student must opt-in this process. Students may notify the instructor within the timeframe as indicated on the academic calendar for that semester if they wish to choose an S/U grading option via email (it needs to be in written form) upon reviewing their assigned grade in Blackboard. Regardless of this request, instructors will grade all student work based on the letter-grade grading policy posted in the course syllabus. Students do not need to notify faculty if they want to keep their letter grade and not avail themselves of the S/U option.

This will help maintain course integrity and consistency as well as accuracy in any potential grade appeal processes, etc.

Drop Courses

If a student decides to drop any courses as defined by policy (PS 03.B.04 §2.3), the student must notify the CST Graduate Studies office prior to dropping any courses. This will ensure that the student’s graduation plan remains accurate. If a student is withdrawing from all registered courses the following procedures will need to be completed:

- Login to your Student Records & Enrollment portal by selecting the Enrollment: Drop Classes link on the left side of your screen leaving one of the courses enrolled.
- Then go back to your Student Records & Enrollment portal an select the **Request Term Withdrawal** link on the left side of your screen, fill out the form and click submit.

Your request to withdraw from the remaining course will be processed the following business day. For further assistance, please contact the Registrar’s Office at 713-221-8999 and a representative will be happy to assist you.

Any student who withdraws in any given term will need to contact the CST Graduate Studies office before returning to their program to discuss academic standing. Upon return, students will not need to submit a new Apply Texas application unless the student has been out 14 months or longer.

Leaves of Absence

Leaves of absence may be granted by the Dean's office for extenuating circumstances. An official leave of absence would allow the student to remain on their current catalog upon returning unless, their original catalog benefits the student compared to the latest catalog degree plan. Leaves of absences can include military leave or Title IX medical leave.

Academic Honesty

The Academic Honesty Code is embraced by all members of the UHD community and is an essential element of the institution's academic credibility. The Honesty Code states "We will be honest in all our academic activities and will not tolerate dishonesty." The purpose of the Academic Honesty Policy is to deal with alleged violations of the Honesty Code in a fair and consistent manner. It is each student's responsibility to read and understand the Academic Honesty Policy (PS 03.A.19). Graduate students within the College of Sciences and Technology (CST) should be familiar with the University's Academic Honesty Policy (PS 03.A.19). In addition, graduate students within this college will be held to a higher level of integrity and should be familiar with the CST Graduate Academic Honesty Policy which is located on the College's website ([..\CST_GraduateAcademicHonesty_FINAL.pdf](#)).

Post-Baccalaureate Students

Students who wish to take courses at the graduate level within the College of Sciences and Technology without pursuing a graduate degree at UHD will need to apply as a post-baccalaureate student at the undergraduate level. Anyone who plans to enroll as a post-bac student must first contact the Assistant Director of Graduate Studies for advising and course approval.

UHD defines post-bac students as those who are:

- Seeking a master's degree at another university (transient student) and come to UHD to take courses that will transfer to their home institution.
- Taking courses and do not want to pursue a graduate degree at UHD or elsewhere.

Required admission materials for post-bacs:

- *Application form:* The undergraduate application form includes post-bac admission option.
- *Application fee.*
- *Official transcript* from the institution where bachelor's degree or equivalent was awarded.

International post-bac admissions:

- International admission requirements apply.

Advising and registration of post-bacs:

- Post-bac students who are interested in registering in graduate courses will need to contact the Assistant Graduate Director to determine if there are seats available. Graduate students admitted to respective graduate programs have priority in the registration process.

Post-bac regulations:

- If s/he meets prerequisite requirements and is approved by the graduate program director, a post-bac student may register for up to six graduate semester SCHs without being admitted to any CST graduate program.
- A post-bac student may take undergraduate courses along with graduate courses. Undergraduate courses are not subject to the six semester credit hour graduate maximum.
- A post-bac student taking graduate courses will have the same privileges as a post-bac student taking undergraduate courses.
- A post-bac student is expected to complete the same work and be evaluated according to the same standards as a graduate student.
- *Admission of post-bac students to a graduate program:* Permission to enroll in UHD graduate courses as a post-baccalaureate student does not guarantee acceptance into a graduate program. UHD Post-bac and former post-bac students interested in pursuing a master's degree in CST must apply to the graduate program for admission and meet all the admissions requirements. If denied admission to a graduate program, students who have not taken more than six graduate SCHs at UHD may be allowed to continue as a post-bac student and may be allowed to continue taking graduate courses (see restrictions noted above).

Applying for Graduation

Students intending to graduate in a particular semester must be sure to (1) complete a graduation application form via Apply for Graduation link on the MyUHD2.0 webpage; (2) adhere to all deadlines; and (3) inform their Assistant Graduate Director one week before the first day of record.

Financial Aid

The Office of Scholarships and Financial Aid

Suite 330-South, 713-221-8041

The Office of Scholarships and Financial Aid (OSFA) assists students with the financial planning and financing for their education. Financial aid consists of grants, scholarships, loans, and work study. Most aid, except for scholarships, is based upon individual need and eligibility. Aid is available to students who are enrolled part-time or full-time, have satisfactory academic progress, and demonstrate financial need. Students not enrolled in a graduate degree program are not eligible for financial aid.

To be considered for aid, the candidate will need to complete the Free Application for Federal Student Aid (FAFSA). A paper application can be picked up at the Office of Scholarships and Financial Aid or the application can be filled out online at <https://fafsa.ed.gov/>. **The UHD school code is 003612.**

Emergency Tuition and Book Loans

A limited amount of money is available to make emergency loans to students. The eligibility guidelines and the instructions can be viewed at: <https://www.uhd.edu/financial/apply/Pages/financial-apply-graduate.aspx> These loans require an application and funds are disbursed on a first-come, first-served basis.

Estimated Costs

Tuition and fee costs are posted at:

<https://www.uhd.edu/student-resources/cashiers/tf-ay2021/Pages/cashiers-grad-tuition2021.aspx>

CST GRADUATE DEGREES AND CERTIFICATES

[Graduate Certificate in Applied Statistics](#)

[Graduate Certificate in Foundations of Data Analytics](#)

[Graduate Certificate in Computational Mathematics](#)

[Graduate Certificate in Mathematics](#)

[Master of Science in Data Analytics](#)

[Master of Science in Artificial Intelligence](#)

Graduate Certificate in Mathematics

Ermelinda DeLaVina, PhD, Graduate Director

cstgrad@uhd.edu

Angel Griffin, Assistant Director Graduate Studies

713-221-5702

The Certificate in Graduate Mathematics allows students to take a variety of theory and application-based courses to strengthen their knowledge of mathematics and to prepare them for future careers, graduate degrees, and teaching opportunities. To earn the certificate, students must successfully complete with a B or better four graduate mathematics courses but are welcome to take additional graduate mathematics courses to work towards meeting requirements for teaching dual-credit mathematics at the high school level or introductory mathematics at the collegiate level. Some students may wish to continue on to UHD graduate degrees such as the Masters of Arts in Teaching or the Masters of Science in Data Analytics.

Courses are taken for the Graduate Mathematics Certificate can be applied to these other graduate degrees, as well. Certificate courses are offered in a variety of formats including fully online, hybrid and face-to-face. Courses are offered during long semesters and in summer semesters and are taught by UHD Mathematics and Statistics faculty.

Program Learning Outcomes

The Certificate in Graduate Mathematics is perfect for students who are interested in pursuing a graduate degree in a mathematics-related field but either want a refresher on important concepts in mathematics or want to begin slowly by taking one or two courses at a time. It is also fitting for those practicing teachers who are looking to complete or begin their graduate mathematics hours to teach dual-credit mathematics at the high school level or entry-level undergraduate mathematics at the collegiate level*. Courses are offered at night, online and hybrid to fit busy schedules as well as during the summers.

**Southern Association of Colleges and Schools Commission on Colleges (SACSCOC) requires those teaching dual-credit or collegiate mathematics to have a Master's degree in some field and a concentration in mathematics (18 credit hours in mathematics). This certificate requires 12 hours so students will need to take an additional 6 hours to complete the graduate concentration requirements.*

Admission Overview

Applicants applying to the program should ensure the following requirements are met:

- ❖ A completed Apply Texas application (Click on Apply Now below).
- ❖ Submit (1,000 words or less) personal statement addresses why you want to pursue a mathematics certificate.
- ❖ Bachelor degree conferred by a regionally accredited institution.
- ❖ Official University transcript(s) from which the applicant earned a Bachelor's degree and an advanced degree (if applicable) indicating:
 - the last 60 semester credit hours of coursework and evidence of Bachelor's degree awarded and the GPA. As admission to the degree program is competitive, candidates with a cumulative GPA of 3.0 or higher will be preferred.
 - Successful completion of some sophomore-level or higher mathematics coursework including a Calculus sequence and at least one proof-based course such as Linear Algebra, Discrete Mathematics or Introduction to Proof.
- ❖ Students with an international transcript must submit their transcripts to UHD already evaluated for U.S. equivalency. Here is a list of approved agencies. If residential applicants are experiencing any delays in submitting their official transcript, we will currently accept unofficial transcripts indicating Bachelor's degree conferred as part of the completion of the application.
- ❖ Graduate Record Exam (GRE) Waiver can be requested for applicants with a GPA above 3.0 in their last 60 hours of college coursework.
- ❖ Resume documenting any work experience that emphasizes personal and professional accomplishments.
- ❖ One letter of recommendation or recommendation form an individual well-acquainted with your work and who are able to address your academic potential, for example, work supervisors and professors.
- ❖ Test of English as a Foreign Language (TOEFL) score, if you are a graduate of a university where English is not the primary language of instruction (preferred TOEFL scores are: an Internet-based score of 81, a paper-based score of 553 or an IELTS score of 6.5 or higher).

As a waiver to these English Proficiency Exams, the College of Sciences & Technology Graduate Studies office will accept as proof of English proficiency, a full-time employment history of at least 3 years in a country where English is the primary language spoken, such as the US, UK, Canada, etc. Please submit the [English Proficiency Waiver Form](#) as part of your application documents to the Graduate Admissions office.

Applicants must complete and submit all the documentation from above to the Office of Admissions prior to the admissions deadline for the semester they desire admission (UHD Office of Admissions - Graduate Admissions, One Main Street, Suite 325, Houston, TX 77002). A non-refundable application fee of \$35.00 must be submitted with the application. The application, documents, and fee will be valid for 14 months.

Admission Process:

The Graduate Advisory Committee will evaluate applications using a matrix based on GPA, GRE score, relevant coursework or experience, recommendations, and other written materials in the applicant's file. The Assistant Director or the Director of Graduate Studies will notify students, in writing, of the committee's decision.

If a student wishes to appeal their Admissions decision, an applicant will need to complete the [CST Graduate Admissions Appeal Form](#) along with documentation.

Degree Requirements

The Graduate Mathematics Certificate requires a minimum of 12 graduate semester credit hours from the graduate mathematics courses offered at UHD. Students are welcome to take additional courses in graduate mathematics as required for their intended career or graduate degree.

While students may take a combination of MATH courses from the list above, for those students planning on earning the Masters of Arts in Teaching or completing requirements for dual-credit or entry-level undergraduate mathematics teaching, we suggest they take MATH 5300, MATH 5306, MATH 5307, MATH 6322 and MATH 5315. Those students planning to continue on to the Masters of Science in Data Analytics should take MATH 5300, MATH 5302, MATH 5310, MATH 5311 and MATH 5316.

Earning the certificate is dependent upon satisfactory completion of all coursework with a minimum graduate grade point average of 3.0, which includes all attempted graduate courses in the program. Satisfactory completion of graduate courses includes completing all coursework with a grade of "B" or better.

Minimum Grade Point Average to remain in the Graduate Mathematics Certificate program

MATH 5310/STAT 5301 must be completed with grades of B or better and otherwise at most one grade of "C" will be allowed and then only if the cumulative GPA is 3.0 or higher. Upon receipt of a second grade below a "B" in any three graduate courses, or if the GPA drops below 3.0, the student will be academically dismissed from the program once all appeals are exhausted.

Graduate Certificate in Foundations of Data Analytics

Ermelinda DeLaVina, PhD, Graduate Director
cstgrad@uhd.edu

Angel Griffin, Assistant Director Graduate Studies
713-221-5702

The Graduate Certificate of Foundation in Data Analytics will provide learning professionals with the knowledge and skills necessary to begin to effectively analyze, but particularly understand the analysis of the growing amount of data available in a variety of disciplines and transform it into usable information for use in decision-making. This certificate is intended for professionals who want to enhance their skills in the area of statistical and programming foundations of data analytics, including working adults who wish to add to their credentials without committing to a full master program. In addition, prospective candidates for the MSDA who do not meet the GRE waiver criteria could use this certificate as step towards the MSDA by demonstrating mastering in STAT 5301 and CS 5301.

Program Learning Outcomes

- ❖ Organize, transform, and manipulate data in various formats.
- ❖ Convert a data analytic problem and related information into proper mathematical representation.
- ❖ Write code that is well documented and reproducible.

Admission Overview

Applicants applying to the program should ensure the following requirements are met:

- ❖ A completed Apply Texas application (Click on Apply Now below).
- ❖ Submit (1,000 words or less) personal statement that addresses why you want to pursue a master's in data analytics.
- ❖ Bachelor degree conferred by a regionally accredited institution.
- ❖ Official University transcript(s) from which the applicant earned a Bachelor's degree and an advanced degree (if applicable) indicating:
 - the last 60 semester credit hours of coursework and evidence of Bachelor's degree awarded and the GPA.
 - as admission to the degree program is competitive, candidates with a cumulative GPA of 3.0 or higher will be preferred.
- ❖ Students with an international transcript must submit their transcripts to UHD already evaluated for U.S. equivalency. Here is a list of approved agencies. If residential applicants are experiencing any delays in submitting their official transcript, we will currently accept unofficial transcripts indicating Bachelor's degree conferred as part of the completion of the application.
- ❖ Graduate Record Exam (GRE) Waiver can be requested for applicants with a GPA above 3.0 in their last 60 hours of college coursework. The last 60 hours GPA must be counted with all attempted course grades including repeats and not just the highest grades.

- ❖ Resume documenting any work experience that emphasizes personal and professional accomplishments.
- ❖ Two letters recommendation or two recommendation forms from individuals well-acquainted with your work and who are able to address your academic potential, for example, work supervisors and professors. Fill out the MSDA Application Reference Form.
- ❖ Test of English as a Foreign Language (TOEFL) score, if you are a graduate of a university where English is not the primary language of instruction (preferred TOEFL scores are: an Internet-based score of 81, a paper-based score of 553 or an IELTS score of 6.5 or higher). As a waiver to these English Proficiency Exams, the College of Sciences & Technology Graduate Studies office will accept as proof of English proficiency, a full-time employment history of at least 3 years in a country where English is the primary language spoken, such as the US, UK, Canada, etc. Please submit the [English Proficiency Waiver Form](#) as part of your application documents to the Graduate Admissions office.

Applicants must complete and submit all the documentation from above to the Office of Admissions prior to the admissions deadline for the semester they desire admission (UHD Office of Admissions - Graduate Admissions, One Main Street, Suite 325, Houston, TX 77002). A non-refundable application fee of \$35.00 must be submitted with the application. The application, documents, and fee will be valid for 14 months.

Admission Process:

The Graduate Advisory Committee will evaluate applications using a matrix based on GPA, GRE score, relevant coursework or experience, recommendations, and other written materials in the applicant's file. The Assistant Director or the Director of Graduate Studies will notify students, in writing, of the committee's decision.

If a student wishes to appeal their Admissions decision, an applicant will need to complete the [CST Graduate Admissions Appeal Form](#) along with documentation.

Degree Requirements

The Graduate Certificate of Foundation in Data Analytics requires a minimum of 12 graduate semester credit hours. Students will complete CS 5301, STAT 5301 with options of CS 5318 or CS 6301 and STAT 5310 or STAT 5311 for the total of 12 hours. Any student wishing to apply to the Master of Science in Data Analytics upon completion of the certificate will already have these 12 hours towards the master's.

Earning the certificate is dependent upon satisfactory completion of all coursework with a minimum graduate grade point average of 3.0, which includes all attempted graduate courses in the program. Satisfactory completion of graduate courses includes completing all coursework with a grade of "B" or better.

Minimum Grade Point Average to remain in the Graduate Certificate of Foundation in Data Analytics.

CS 5301 and STAT 5301 must be completed with grades of B or better and otherwise at most one grade of "C" will be allowed and then only if the cumulative GPA is 3.0 or higher. Upon receipt of a second grade below a "B" in any three graduate courses, or if the GPA drops below 3.0, the student will be academically dismissed from the program once all appeals are exhausted.

Graduate Certificate in Applied Statistics

Ermelinda DeLaVina, PhD, Graduate Director
cstgrad@uhd.edu
Angel Griffin, Assistant Director Graduate Studies
713-221-5702

The Graduate Certificate in Applied Statistics is a 12-hour certificate that will allow students to take foundational statistics and mathematics coursework to provide a strong background for data analytics work. In addition, the certificate provides an opportunity for students who may not be interested in a full master's degree but want to strengthen their skill in statistics and mathematics. Like the existing Master of Science in Data Analytics (MSDA), this certificate will provide students opportunities to obtain fundamental and specialized skills in analyzing large data sets and communicating results and interpretations in a wide range of professions ranging from criminal justice, businesses, education, health agencies and institutions, and the natural and social sciences.

In addition, practicing high school or community college teachers who are looking to earn graduate credit in mathematics in order to teach college-credit mathematics courses in their current institutions. The 12-hour certificate will allow them to take 4 of the 6 courses needed to fulfill the SACSCOC requirement of 18 hours in the field.

Program Learning Outcomes

- ❖ Organize, transform, and manipulate data in various formats.
- ❖ Convert a data analytic problem and related information into proper mathematical representation.
- ❖ Select appropriate methods and tools for data analysis, perform mathematical functions and transformations accurately, and make meaningful interpretation of results.

Admission Overview

Applicants applying to the program should ensure the following requirements are met:

- ❖ A completed Apply Texas application (Click on Apply Now below).
- ❖ Submit (1,000 words or less) personal statement that addresses why you want to study applied statistics.
- ❖ Bachelor degree conferred by a regionally accredited institution.
- ❖ Official University transcript(s) from which the applicant earned a Bachelor's degree and an advanced degree (if applicable) indicating:
 - the last 60 semester credit hours of course work and

- evidence of Bachelor's degree awarded and the cumulative GPA.
- ❖ Students with an international transcript must submit their transcripts to UHD already evaluated for U.S. equivalency. Here is a list of approved agencies. If residential applicants are experiencing any delays in submitting their official transcript, we will currently accept unofficial transcripts indicating Bachelor's degree conferred as part of the completion of the application.
- ❖ As admission to the certificate is competitive, candidates with a cumulative GPA of 2.75 or higher and B or higher in an Undergraduate Statistics or Probability course will be preferred.
- ❖ Resume documenting any work experience that emphasizes personal and professional accomplishments.
- ❖ One letter of recommendation or recommendation form from individuals well-acquainted with your work and who are able to address your academic potential, for example, work supervisors and professors.
- ❖ Test of English as a Foreign Language (TOEFL) score, if you are a graduate of a university where English is not the primary language of instruction (preferred TOEFL scores are: an Internet-based score of 81, a paper-based score of 553 or an IELTS score of 6.5 or higher). As a waiver to these English Proficiency Exams, the College of Sciences & Technology Graduate Studies office will accept as proof of English proficiency, a full-time employment history of at least 3 years in a country where English is the primary language spoken, such as the US, UK, Canada, etc. Please submit the [English Proficiency Waiver Form](#) as part of your application documents to the Graduate Admissions office.

Applicants must complete and submit all the documentation from above to the Office of Admissions prior to the admissions deadline for the semester they desire admission (UHD Office of Admissions - Graduate Admissions, One Main Street, Suite 325, Houston, TX 77002). A non-refundable application fee of \$35.00 must be submitted with the application. The application, documents, and fee will be valid for 14 months.

Admission Process:

The Graduate Advisory Committee will evaluate applications using a matrix based on GPA, GRE score, relevant coursework or experience, recommendations, and other written materials in the applicant's file. The Assistant Director or the Director of Graduate Studies will notify students, in writing, of the committee's decision.

If a student wishes to appeal their Admissions decision, an applicant will need to complete the [CST Graduate Admissions Appeal Form](#) along with documentation.

Degree Requirements

The Graduate Certificate in Applied Statistics requires a minimum of 12 graduate semester credit hours including STAT 5301 and an additional 9 hours from the following courses; STAT 5302, STAT 5307, STAT 5309, STAT 5310, STAT 5311, STAT 6312, STAT 6390 or STAT 6399.

Earning the certificate is dependent upon satisfactory completion of all coursework with a minimum graduate grade point average of 3.0, which includes all attempted graduate courses in

the program. Satisfactory completion of graduate courses includes completing all coursework with a grade of "B" or better.

Minimum Grade Point Average to remain in the Applied Statistics

STAT 5301 must be completed with grades of B or better and otherwise at most one grade of "C" will be allowed and then only if the cumulative GPA is 3.0 or higher. Upon receipt of a second grade below a "B" in any three graduate courses, or if the GPA drops below 3.0, the student will be academically dismissed from the program once all appeals are exhausted.

Graduate Certificate in Computational Mathematics

Ermelinda DeLaVina, PhD, Graduate Director

cstgrad@uhd.edu

Angel Griffin, Assistant Director Graduate Studies

713-221-5702

The Graduate Certificate in Computational Mathematics will provide students with the knowledge and qualifications necessary to effectively analyze and solve the real work problems in a variety of disciplines and transform those solutions into usable information in systems design and decision-making. This certificate is for professionals who want to gain quantitative and computational skills so that they are able to take advantage of the growing number of jobs in computational sciences and engineering as well as, any other applications that require those skills. It may also serve as a first step toward a graduate degree in an area related to computational and applied mathematics.

Program Learning Outcomes

- ❖ Develop numerical methods for approximating solutions to various computational problems;
- ❖ Implement a variety of numerical algorithms using technology;
- ❖ Apply computational methods to modeling real world phenomena; and
- ❖ Communicate analysis of computing, current technology and future trends in computational mathematics orally and in writing.

Admission Overview

Applicants applying to the program should ensure the following requirements are met:

- ❖ A completed Apply Texas application (Click on Apply Now below).
- ❖ Submit (1,000 words or less) personal statement addresses why you want to study computational mathematics.
- ❖ Bachelor degree conferred by a regionally accredited institution.
- ❖ Official University transcript(s) from which the applicant earned a Bachelor's degree and an advanced degree (if applicable) indicating:
 - the last 60 semester credit hours of course work and
 - evidence of Bachelor's degree awarded and the cumulative GPA.

- ❖ Students with an international transcript must submit their transcripts to UHD already evaluated for U.S. equivalency. Here is a list of approved agencies. If residential applicants are experiencing any delays in submitting their official transcript, we will currently accept unofficial transcripts indicating Bachelor's degree conferred as part of the completion of the application.
- ❖ Grade of B or higher in a numerical methods course such as MATH 3408 at UHD.
- ❖ Undergraduate GPA of at least 3.
- ❖ Resume documenting any work experience that emphasizes personal and professional accomplishments.
- ❖ One letter of recommendation or recommendation form from an individual well-acquainted with your work and who are able to address your academic potential, for example, work supervisors and professors.
- ❖ Test of English as a Foreign Language (TOEFL) score, if you are a graduate of a university where English is not the primary language of instruction (preferred TOEFL scores are: an Internet-based score of 81, a paper-based score of 553 or an IELTS score of 6.5 or higher). As a waiver to these English Proficiency Exams, the College of Sciences & Technology Graduate Studies office will accept as proof of English proficiency, a full-time employment history of at least 3 years in a country where English is the primary language spoken, such as the US, UK, Canada, etc. Please submit the [English Proficiency Waiver Form](#) as part of your application documents to the Graduate Admissions office.

Applicants must complete and submit all the documentation from above to the Office of Admissions prior to the admissions deadline for the semester they desire admission (UHD Office of Admissions - Graduate Admissions, One Main Street, Suite 325, Houston, TX 77002). A non-refundable application fee of \$35.00 must be submitted with the application. The application, documents, and fee will be valid for 14 months.

Admission Process:

The Graduate Advisory Committee will evaluate applications using a matrix based on GPA, GRE score, relevant coursework or experience, recommendations, and other written materials in the applicant's file. The Assistant Director or the Director of Graduate Studies will notify students, in writing, of the committee's decision.

If a student wishes to appeal their Admissions decision, an applicant will need to complete the [CST Graduate Admissions Appeal Form](#) along with documentation.

Degree Requirements

The Graduate Certificate in Computational Math requires a minimum of 12 graduate semester credit hours including MATH 5301 (Advanced Numerical Methods), MATH 5303 (Numerical Linear Algebra), MATH 5304 (Numerical Differential Equations and Optimization) and MATH 5315 (Mathematical Modeling).

Earning the certificate is dependent upon satisfactory completion of all coursework with a minimum graduate grade point average of 3.0, which includes all attempted graduate courses in the program. Satisfactory completion of graduate courses includes completing all coursework with a grade of "B" or better.

Minimum Grade Point Average to remain in the Graduate Certificate in Computational Math Certificate

At most one grade of "C" will be allowed and then only if the cumulative GPA is 3.0 or higher. Upon receipt of a second grade below a "B" in any three graduate courses, or if the GPA drops below 3.0, the student will be academically dismissed from the program once all appeals are exhausted.

Master of Science in Data Analytics

Ermelinda DeLaVina, PhD, Graduate Director msda@uhd.edu

Angel Griffin, Assistant Director Graduate Studies

713-221-5702

The Master of Science in Data Analytics (MSDA) is a theory and an application-based program that will provide students with a broad education in advanced statistics, digital data acquisition, digital data management, data analysis, and data presentation. The MS in Data Analytics is designed to meet the increasing need for highly skilled data analysts who can analyze the growing amount of data confronting in a variety of disciplines, and transform it into usable information for use in decision-making. The program is a university-wide collaboration that delivers rigorous training in statistical analysis and computational techniques and provides mastery of data analysis tied to interdisciplinary applications. The program focuses on courses relating to regression analysis, multivariate analysis, experimental design, nonparametric analysis, statistical modeling, simulation, mathematical theory for data analysis, and statistical computing. Students will have interdisciplinary application options in business management, science, criminal justice, education, communication, and social sciences. Students will also have the opportunity to engage in research or real-world applications with faculty members at UHD and other collaborators of UHD faculty and/or internships with partnering businesses, industry, and government agencies.

Program Learning Outcomes

Graduates who earn a MS in Data Analytics will be able to:

- ❖ Organize, manipulate, and summarize data in various formats.
- ❖ Convert a data analytic problem and related information into proper mathematical representation and select appropriate methodologies for analysis based on attributes of the available data sets.
- ❖ Implement security measures and ethical practices for collection and storage of data.
- ❖ Transfer (and transform) data from different platforms into usable contexts.
- ❖ Communicate and summarize results of data analysis in written, oral and visual form.
- ❖ Select the appropriate methods and tools for data analysis in specific organizational contexts.

Admission Overview

Admission requirements for the MS in Data Analytics are designed to identify applicants who have the ability, interest, and qualities necessary to complete the program. Admission is

competitive and selective. Applicants must demonstrate that they possess the abilities, interests, and qualities necessary to successfully complete the program.

Applicants applying to the program should ensure the following requirements are met:

- ❖ A completed Apply Texas application (Click on Apply Now below).
- ❖ Submit (1,000 words or less) personal statement that addresses why you want to pursue a master's in data analytics.
- ❖ Bachelor degree conferred by a regionally accredited institution.
- ❖ Official University transcript(s) from which the applicant earned a Bachelor's degree and an advanced degree (if applicable) indicating:
 - the last 60 semester credit hours of coursework and evidence of Bachelor's degree awarded and the GPA.
 - as admission to the degree program is competitive, candidates with a cumulative GPA of 3.0 or higher will be preferred.
- ❖ Students with an international transcript must submit their transcripts to UHD already evaluated for U.S. equivalency. Here is a list of approved agencies. If residential applicants are experiencing any delays in submitting their official transcript, we will currently accept unofficial transcripts indicating Bachelor's degree conferred as part of the completion of the application.
- ❖ Graduate Record Exam (GRE) Waiver can be requested for applicants with a GPA above 3.0 in their last 60 hours of college coursework. The last 60 hours GPA must be counted with all attempted course grades including repeats and not just the highest grades.
- ❖ Resume documenting any work experience that emphasizes personal and professional accomplishments.
- ❖ Two letters recommendation or two recommendation forms from individuals well-acquainted with your work and who are able to address your academic potential, for example, work supervisors and professors. Fill out the MSDA Application Reference Form.
- ❖ Test of English as a Foreign Language (TOEFL) score, if you are a graduate of a university where English is not the primary language of instruction (preferred TOEFL scores are: an Internet-based score of 81, a paper-based score of 553 or an IELTS score of 6.5 or higher). As a waiver to these English Proficiency Exams, the College of Sciences & Technology Graduate Studies office will accept as proof of English proficiency, a full-time employment history of at least 3 years in a country where English is the primary language spoken, such as the US, UK, Canada, etc. Please submit the [English Proficiency Waiver Form](#) as part of your application documents to the Graduate Admissions office.

Applicants must complete and submit all the documentation from above to the Office of Admissions prior to the admissions deadline for the semester they desire admission (UHD Office of Admissions - Graduate Admissions, One Main Street, Suite 325, Houston, TX 77002). A non-refundable application fee of \$35.00 must be submitted with the application. The application, documents, and fee will be valid for 14 months.

Admission Process:

The Graduate Advisory Committee will evaluate applications using a matrix based on GPA, GRE score, relevant coursework or experience, recommendations, and other written materials in the applicant's file. The Assistant Director or the Director of Graduate Studies will notify students, in writing, of the committee's decision.

If a student wishes to appeal their Admissions decision, an applicant will need to complete the [CST Graduate Admissions Appeal Form](#) along with documentation.

Degree Requirements

The Master of Science in Data Analytics requires a minimum of 35 semester credit hours. All students complete a set of 12 required core classes as well as 2 additional elective courses. Students will also complete a 3 credit hour portfolio capstone or other capstone options as approved. For full details of required courses, please see Graduate Catalog:

http://catalog.uhd.edu/preview_program.php?catoid=10&poid=2521&returnto=793.

Internships must be approved by the Director prior to the student enrolling in the course.

Earning the master's is dependent upon satisfactory completion of all coursework with a minimum graduate grade point average of 3.0, which includes all attempted graduate courses in the program. Satisfactory completion of graduate courses includes completing all coursework with a grade of "B" or better.

Minimum Grade Point Average to remain in the M.S. in Data Analytics

STAT 5301 and CS 5301 must be completed with grades of B or better and otherwise at most two grades of "C" will be allowed and then only if the cumulative GPA is 3.0 or higher. Upon receipt of a third grade below a "B" in any three graduate courses, or if the GPA drops below 3.0, the student will be academically dismissed from the program once all appeals are exhausted.

Master of Science in Artificial Intelligence

Ermelinda DeLaVina, PhD, Graduate Director msai@uhd.edu

Angel Griffin, Assistant Director Graduate Studies

713-221-5702

Program Learning Outcomes

Students who complete the program will be able to:

- ❖ Explore, prepare, and clean data.
- ❖ Transfer data into machine-learning representations of unsupervised, supervised, or reinforcement learning.
- ❖ Design and develop intelligent agents and expert systems that receive percepts from the environment and perform actions.

- ❖ Communicate and summarize AI solutions in written, oral, and visual form.

Admission Overview:

Admission Requirements:

Admission to the UHD MSAI program is based upon the applicant's scholastic ability, motivation, and potential for success. These attributes will be assessed through the submission of the following documents to the Office of Graduate & International Admissions at gradadmissions@uhd.edu

Applicants seeking admission will provide the following application materials for review by the Graduate Curriculum Committee. Please submit all documents to the Graduate Admissions office at gradadmissions@uhd.edu:

- ❖ A completed Apply Texas application (Click on Apply Now below).
- ❖ Submit (1,000 words or less) personal statement that addresses why you want to study Artificial Intelligence.
- ❖ Baccalaureate degree conferred by a regionally-accredited institution. Students with an international transcript must submit their transcripts to UHD already evaluated for U.S. equivalency. Here is a list of approved agencies. If residential applicants are experiencing any delays in submitting their official transcript, we will currently accept unofficial transcripts indicating Bachelor's degree conferred as part of the completion of the application.
- ❖ Official University transcript(s) from which the applicant earned a Bachelor's degree and an advanced degree (if applicable) indicating:
 - the last 60 semester credit hours of coursework and evidence of Bachelor's degree awarded and the GPA.
 - as admission to the degree program is competitive, candidates with a cumulative GPA of 3.0 or higher will be preferred.
- ❖ Official Graduate Record Exam (GRE) score report. [GRE waiver](#) can be requested for applicants with a GPA above 3.0 in their last 60 hours of college coursework or who complete CS 5302 (Programming Foundations) and MATH 5300 (Survey of Undergraduate Mathematics) with a grade of B or better. The last 60 hours' GPA must be counted with all attempted course grades, including repeats and not just the highest grades.
- ❖ Resume documenting any work experience that emphasizes personal and professional accomplishments.
- ❖ Two letters recommendation or two recommendation forms from individuals well-acquainted with your work and who can address your academic potential, for example, work supervisors and professors. Fill out the MSAI Application Reference Form.
- ❖ Test of English as a Foreign Language (TOEFL) score, if you are a graduate of a university where English is not the primary language of instruction (preferred TOEFL scores are: an Internet-based score of 81, a paper-based score of 553 or an IELTS score of 6.5 or higher). As a waiver to these English Proficiency Exams, the College of Sciences & Technology Graduate Studies office will accept as proof of English proficiency, a full-time employment history of at least 3 years in a country where English is the primary language spoken, such as the US, UK, Canada, etc. Please submit the [English Proficiency Waiver Form](#) as part of your application documents to the Graduate Admissions office.

Waiver for the Foundation courses is available for those who have completed courses in advanced Python (e.g., CS 1311 and CS 2311 at UHD), linear algebra (e.g., MATH 2307 or MATH 2422 at UHD), and probability (e.g., MATH 3302 at UHD) or their equivalent with a grade of B or better. Students who do not meet this requirement will require to complete the following foundation courses with the grade B or better as post-baccalaureate students prior to entering the master program:

1. CS 5302 – Python for Data Analytics
2. MATH 5300 - Survey of Undergraduate Mathematics

Admission Process:

The Graduate Advisory Committee will evaluate applications using a matrix based on GPA, GRE score, relevant coursework or experience, recommendations, and other written materials in the applicant's file. The Assistant Director or the Director of Graduate Studies will notify students, in writing, of the committee's decision.

If a student wishes to appeal their Admissions decision, an applicant will need to complete the [CST Graduate Admissions Appeal Form](#) along with documentation.

Degree Requirements

The Master of Science in Artificial Intelligence requires a minimum of 30 semester credit hours. All students complete a set of 6 required core classes as well as 3 additional elective courses. Students will also complete a 3 credit hour portfolio capstone or other capstone options as approved. For full details of required courses, please see Graduate Catalog: *coming soon*

Internships must be approved by the Director prior to the student enrolling in the course.

Earning the master's is dependent upon satisfactory completion of all coursework with a minimum graduate grade point average of 3.0, which includes all attempted graduate courses in the program. Satisfactory completion of graduate courses includes completing all coursework with a grade of "B" or better.

Minimum Grade Point Average to remain in the M.S. in Artificial Intelligence

CS 5302 – Python for Data Analytics and MATH 5300 - Survey of Undergraduate Mathematics must be completed with grades of B or better and otherwise at most two grades of "C" will be allowed and then only if the cumulative GPA is 3.0 or higher. Upon receipt of a third grade below a "B" in any three graduate courses, or if the GPA drops below 3.0, the student will be academically dismissed from the program once all appeals are exhausted.

Appendix A:

Effective Spring 2020 intake, all applicants who do not qualify for the GRE waiver based on the last 60 hours of college coursework should apply as a Graduate Certificate in Foundations of Data Analytics applicant in order to take STAT 5301 (Statistical Foundations for Data Analytics) and CS 5301 (Programming in Foundations of Data Analytics). Upon successfully completing the Graduate Certificate in Data Analytics, students can submit a new apply Texas application prior to the application deadline. Students should note that taking the GRE is always an option as long as the GRE score is within the 50th percentile, they can move forward with Graduate application.