

FAQs for the Graduate Certificate in Data Analytics at Virginia Tech

****Please read through the entire FAQ as most questions regarding the certificate program are addressed below****

Q: Who can receive a certificate in data analytics?

A: The certificate is open to all graduate students enrolled in Virginia Tech's graduate school. The certificate is particularly well suited to compliment the technical training of students enrolled in the university's graduate programs in Computer Science, Statistics, or Electrical and Computer Engineering. A technical undergraduate background is required. Students should have proficiency in multiple programming languages, especially those used in data science such as Python or R. Additionally, students should have proficiency in mathematical concepts such as linear algebra, as well as statistical concepts such as probability and inference.

Q: How do I apply for the certificate?

A: Students first have to be admitted to the Virginia Tech graduate school, in any discipline of their choice or as non-degree seeking. For more information about applying to the Virginia Tech graduate school visit: <http://graduateschool.vt.edu/applying>. While filling out your application for the graduate school, you can apply as either a non-degree seeking student or apply directly to the certificate program. If you are already enrolled in Virginia Tech's graduate school, you can simply begin taking the courses to fulfill the certificate requirements.

Q: What do I do after getting admitted?

A: Take the necessary courses to fulfill the certificate requirements.

Q: How do I sign up for courses that restricted to specific majors?

A: The Sanghani Center does NOT take force-add requests for students interested in pursuing the certificate. If you are interested in signing up for a course that is restricted to either of the following majors: CS, ECE or STAT, you must reach out to that specific department for any/all force-add requests. Below are instructions for each department.

CS: If you want to be force-added to a course in CS for Fall 2021, fill out the CS Force Add Form: https://viriniatech.qualtrics.com/jfe/form/SV_6ShepdPgWRo3vll. Check out this page for force-adds for Spring 2022: <https://cs.vt.edu/Graduate/sp22grforceadd.html>

ECE: If you want to be force-added to a course in ECE, Non-ECE students must submit a Force Add request to add ECE courses if there is a restriction. See the ECE Force Add policy here: <https://ece.vt.edu/grad/advising>. The force add survey is available on the ECE website under the graduate advising and graduate forms tab. Note: faculty do not determine whether a student can be added to a class. The force add process is managed by the department and students are asked to submit the Force Add request. We do not add into full courses or based on section/faculty preferences. Please note that our first priority will be to add ECE students.

STAT: If you want to be force-added to a course in ECE, please reach out to Betty Higginbotham (higgvt@vt.edu)

Q: What are the certificate credit requirements?

A: Students should complete at least 2 courses from the core list and 2 courses from the elective list for a total of 12 credits (refer to Appendix A for the list of Core and Restricted Elective Courses). Courses taken must span all three departments; Computer Science, Statistics and Electrical and Computer Engineering. Cross-listed courses can count either way. Students must attain at least a 3.0 grade average for the 4 courses. Per university requirements, all 12 credits required for the certificate can be double counted toward a student's degree program. However, students cannot double count a course towards two certificate programs or triple count a course.

Q: How do I get the certificate after finishing all the requirements?

A: First fill out the [Check Sheet](#) for the certificate and [the Graduate Certificate Application form](#). Submit both forms along with your unofficial transcript to the Sanghani Center (contact info below) to be signed and then submit the Graduate Certificate Application to the Graduate School. Once the Graduate School has accepted your application, you will then need to fill out an [Application for Degree or Certificate Conferral form](#), which also needs to be signed by the Sanghani Center and submitted to the Graduate School. It is recommended that you submit these forms during your last semester or before you plan to graduate; therefore, you should have completed the requirements for the program upon submitting the necessary forms.

Q: Are there any pre-requisites for the certificate?

A: Some of the courses listed may have pre-requisites, please refer to the Graduate Catalog for more information. Students are expected to have a technical background in mathematics and computer programming relevant to data analytics. If you are looking for a less technical certificate program, please visit <http://analytics.cs.vt.edu/edu.php> for a list of other Data Analytics programs offered at Virginia Tech.

Q: What is the time to complete the certificate?

A: The estimated time of completion for students is one year; however, this can vary based on each student and how they fit the required coursework into their plan of study. Time to completion will not substantially increase student's time to completion for their degree program.

Q: Which department administers the certificate?

A: The certificate is administered by the The Sanghani Center for AI and DA. The certificate is a collaboration between the departments of Computer Science, Statistics and Electrical and Computer Engineering.

Q: Who can I contact for additional questions?

A: Either Wanawsha Shalaby, manager of operations for The Sanghani Center (wanah92@vt.edu) or Chris North, professor of computer science (north@vt.edu).

****Please note that Wanawsha Shalaby will be on maternity leave for the Fall 2021 semester and the beginning of the Spring 2022 semester, please reach out to Chris North for any/all questions regarding the certificate program****

Appendix A Core Courses: (Choose 2)

CS/STAT 5525 Data Analytics I

CS/STAT 5526 Data Analytics II

CS 5824/ECE 5424: Advanced Machine Learning

Restricted Elective Courses: (Choose 2)

CS 5234 Advanced Parallel Computation

CS 5604 Information Storage and Retrieval

CS 5614 Database Management Systems

CS 5764 Information Visualization

CS 5804 Introduction to Artificial Intelligence

CS 5834 Introduction to Urban Computing

CS 5984 Deep Learning

CS 6604 Advanced Topics in Data and Information

STAT 5114 Statistical Inference

STAT 5314 Monte Carlo Methods in Statistics

STAT 5414 Time Series Analysis I

STAT 5444 Bayesian Statistics

STAT 5444G Advanced Applied Bayesian Statistics

STAT 5504 Multivariate Statistical Methods

STAT 5544 Spatial Statistics

ECE 5524 Pattern Recognition

ECE 5554 Computer Vision

ECE 5606 Signal Detection and Estimation

ECE 5734 Convex Optimization

ECE 6504 Deep Learning for Perception

ECE 6554 Advanced Computer Vision

CS6424/ECE6424 Probabilistic Graphical Models and Structured Prediction