FAQs for the Graduate Certificate in Urban Computing 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 urban computing?
A: The certificate is open to all graduate students enrolled in Virginia Tech's graduate school. Open to Virginia Tech students located in either the Blacksburg or the greater D.C. metro campus who are pursuing a Master's or Ph.D.

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 only accepts force-add requests for the two core courses (CS 5834 and CS 5024) of the certificate program. If you are interested in signing up for either of these courses but cannot do so as either the courses are full or because of a major restriction, please reach out the contact information provided below.

Q: What are the certificate credit requirements?
A: Students should complete 2 courses from the core list and 2 courses from the elective list for a total of 12 credits. More specifically, the two electives should be chosen so that a minimum of three (3) credits are drawn from the "Horizontals" list and a minimum of three (3) credits come from the "Verticals" list (refer to Appendix A for the list of Core and Restricted Elective Courses). At least two of the four 3-credit courses must be outside the student's home department. If a master's student writes a thesis, it must be related to Urban Computing. Doctoral students must have a successful defense of a doctoral dissertation related to Urban Computing. Students must attain at least a 3.0 grade average for the 4 courses. Per university requirements, all of the 12 required credits 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: 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. If you are looking for additional certificate programs, 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 Sanghani Center for AI and DA. The certificate is a collaboration between the departments of Civil and Environmental Engineering, Computer Science, Electrical and Computer Engineering, Mathematics, Population Health Sciences, Sociology, Statistics, Urban Affairs and Planning.

Q: Who can I contact for additional questions?
A: Wanawsha Shalaby, manager of operations for The Sanghani Center and program coordinator for the UrbComp Program (wanah92@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 Naren Ramakrishnan (naren@cs.vt.edu) and Juanita Victoria (juaniv6@vt.edu) for any/all questions regarding the certificate program

Appendix A

Required core courses (6 credits):
- CS 5834 Introduction to Urban Computing
- CS 5024 Ethics and Professionalism in Computer Science

Restricted Elective Courses: (Choose 2)

"Horizontals" (Data Science/Research Methods) Courses (Choose 1)
CS 5234 Advanced Parallel Computation
CS/MATH 5485 Numerical Analysis and Software I
CS/MATH 5486 Numerical Analysis and Software II
CS/STAT 5525 Data Analytics I
CS/STAT 5526 Data Analytics II
CS 5824/ECE 5424G: Advanced Machine Learning
CS 5764 Information Visualization
STAT 5444 Bayesian Statistics
STAT 5544 Spatial Statistics

"Verticals" (Urban Informatics/Applications) Courses (Choose 1)
CEE 5604 Traffic Characteristics and Flows
CEE 5634 Analysis & Planning of Mass Transit Systems
PHS/VM 5314 Infectious Disease Epidemiology
PHS 5354 Modeling Infectious Diseases
ECE 6304 Advanced Topics in Power
ECE 6334 Computational Methods in Power Engineering
SOC 5504 Population Processes and Policies
SOC 6504 The Sociology of Culture
**UAP 5114: Computer Applications in Urban Planning and Management
UAP 5234: Urban Economics and Policy
UAP 5604: Housing Planning and Policy Topics
UAP 5644: Transportation Systems Planning

** = students in the UAP department pursuing the certificate are advised, based on their background, to take UAP 5114 Computer Applications in Urban Planning and Management as a pre-requisite for CS 5834 Introduction to Urban Computing. Students should enroll in the section taught by either Wenwen Zhang or Theo Lim.