FAQs for the Graduate Certificate in Urban Computing at Virginia Tech

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 National Capital Region 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

Q: What do I do after getting admitted?
A: Take the necessary courses to fulfill the certificate requirements.

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. Students must attain at least a 3.0 grade average for the 4 courses. Per university requirements, at most 6 of the 12 required credits for the certificate can be double counted toward a student's degree program.

Q: How do I get the certificate after finishing all the requirements?
A: First fill out the Check Sheet for the certificate found at
(will add in link to check sheet)
and the Graduate Certificate Application found at
http://graduateschool.vt.edu/forms/academics/Application_Certificate.pdf
Then submit both forms along with your transcript to DAC (contact info below) to be signed and then submit the Graduate Certificate Application to the Graduate School

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. 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 Discovery Analytics Center. 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 Hawrami, manager of operations for the Discovery Analytics Center and program coordinator for the UrbComp Program ([wanah92@vt.edu)](mailto:wanah92@vt.edu).

Appendix A

Required core courses (6 credits):
- CS 5984: Introduction to Urban Computing
- GRAD 5134: Topics in Interdisciplinary Research – Professionalism in Data 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