

## Checksheet for the Graduate Certificate in Data Analytics at Virginia Tech

The Graduate Certificate in Data Analytics is available to all graduate students in the university. Graduate students can select courses from the list below. Courses taken must span all three departments: Computer Science, Statistics and Electrical and Computer Engineering (cross-listed courses can count either way). Per university requirements, at most 6 of the 12 required credits for the certificate can be double counted toward a student's degree program. All courses are 3-hour credit unless otherwise noted in the Graduate Catalog. Students must achieve GPA of at least 3.0 in the four courses. Transfer credits are not permitted.

Student Name: \_\_\_\_\_

Department: \_\_\_\_\_ Degree (MS/Ph.D.): \_\_\_\_\_

Advisor: \_\_\_\_\_

	Credit Hours	Course	Final Project Grade	Grade
<b>A. Required Core Courses:</b>	3	_____	_____	_____
<b>(6 credit hours minimum)</b>	3	_____	_____	_____
CS/STAT 5525 Data Analytics I				
CS/STAT 5526 Data Analytics II				
CS 5824/ECE 5424G Advanced Machine Learning				
<b>B. Restricted Elective Courses:</b>	3	_____	_____	_____
<b>(6 credit hours minimum)</b>	3	_____	_____	_____
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 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 5605 Stochastic Signals and Systems				
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				
UAP 5644: Transportation Systems Planning				

The above student has successfully completed the program requirements.

Signed: \_\_\_\_\_ (Chair, Oversight Committee)

Date: \_\_\_\_\_

**STUDENT: Based on what you have learned, please answer the following required essay question to the best of your ability. Attach your answer essay as a separate PDF document.**

Describe how you would take into account interdisciplinary perspectives, namely computer science, statistical and engineering perspectives, when taking on a challenging big data analytics problem. As an example context, consider a scenario in which you are consulting for a major city government to tackle the problem of understanding new trends in citizen use of alternative transportation, such as ride sharing and rental scooters.