GRADUATE STAND-ALONE CERTIFICATE IN DATA SCIENCE FOR THE CHEMICAL INDUSTRY

The objective of this certificate is to provide engineers in the chemical industry with knowledge of basic data science and machine learning techniques, and experience applying these techniques to specific problems in chemical engineering.

General Guidelines for Certificates:

- All courses must be taken for Letter-grade
- All courses must be completed with a grade of 'C' or higher
- Certificates requirement a minimum GPA of 2.7

Code	Title	Credit Hours
Core Courses		
CHBE 6745	Data Analytics for Chemical Engineers	3
CHBE 6746	Data-Driven Process Systems Engineering	3
Electives		**6**
CS 6035	Introduction to Information Security	
CS 6220	Big Data Systems and Analytics	
CS 6400	Database Systems Concepts and Design	
CS 6421	Temporal, Spatial and Active Databases	
CS 6430	Parallel and Distributed Database Systems and Applications	
CS 6601	Artificial Intelligence	
CS 7641/ CSE 6740/ ISYE 6740	Machine Learning	
CSE 6040	Computing for Data Analysis: Methods and Tools	
CSE 6140	Computational Science and Engineering Algorithms	
CSE 6242	Data and Visual Analytics	
ISYE 6402	Time Series Analysis	
ISYE 6413	Design and Analysis of Experiments	
ISYE 6414	Statistical Modeling and Regression Analysis	
ISYE 6416	Computational Statistics	
ISYE 6420	Introduction to Theory and Practice of Bayesian Statistics	
ISYE 6501	Intro Analytics Modeling	
ISYE 6644	Simulation	
ISYE 6662	Discrete Optimization	
ISYE 6664	Stochastic Optimization	
ISYE 6740	Computational Data Analysis: Learning, Mining, and Computation	
ISYE 6810	Systems Monitoring and Prognostics	
ISYE 7201	Production and Service Systems Engineering	
ISYE 7203	Logistics Systems Engineering	
ISYE 7406	Data Mining and Statistical Learning	
ISYE 8803	Special Topics (Topics on High-Dimensional Data Analytics)	
MGT 6203	Data Analytics in Business	
MGT 8823	Special Topics in Mgt (Data Analysis for Continuous Improvement)	
PUBP 6501	Information Policy and Management	
PUBP 6725	Information Security Policies and Strategies	
Total Credit Hours		**12**