DATA ANALYTICS FOR PETROLEUM INDUSTRY - CERTIFICATE

There is a growing trend towards the use of data analytics in the upstream and downstream oil and gas industry. With the large-scale deployment of sensors in exploration, drilling, production, asset management, supply chain, and various commercial operations, oil and gas industry has become a massive data intensive industry. Analyzing seismic and micro-seismic data, improving reservoir characterization and simulation, reducing drilling time and increasing drilling safety, optimization of the performance of production pumps, improved petrochemical asset management, improved shipping and transportation, and improved occupational safety are among some of the applications of data analytics in oil and gas industry. Oil and gas industry needs petroleum engineers, geophysicists, geoscientists, and managers to be better equipped with data analytics skills.

This certificate program will appeal to students majoring in geology, geophysics, petroleum engineering, statistics, computer science, and business. With the data analytics skills, students will become more competitive in the job market of the oil and gas industry. Students in statistics or business will acquire domain knowledge in the oil and gas industry and will obtain experience working with real world data. This certificate will equip these students with the skills and experiences for employment in the oil and gas industry.

Program Requirements

Code	Title	Semester Credit Hours
PETE 201	Introduction to Petroleum Engineering	1
STAT 483	Interdisciplinary Data Analytics Practicum	3
Computation and Programming		3
Select one of the following:		
CSCE 310	Database Systems	
CSCE 314	Programming Languages	
GEOP 361	Geophysical Signal Processing	
ISTM 313	Foundations of Data Analytics for Non-MIS Majors	
ISTM 315	Database Programming	
PETE 404	Integrated Reservoir Modeling	
STAT 404	Statistical Computing	
Statistics and Data		3
Select one of the following:		
CSCE 305/ ECEN 360/ STAT 315	Computational Data Science	
CSCE 320/ STAT 335	Principles of Data Science	
GEOL 360	Analyzing Data in Geology	
SCMT 305	Forecasting and the Statistical Foundation of Business Analytics	
STAT 408	Introduction to Linear Models	
Machine Learning		3
Select one of the following:		
CSCE 421	Machine Learning	
ISTM 360	Applied Predictive Analytics	
PETE 419	Petroleum Data Analytics and Machine Learning	
STAT 436	Multivariate Analysis and Statistical Learning	
Total Semester Credit Hours		**13**