

COMPUTATIONAL ANALYTICS (IAC)

IAC 620 Algorithm Analysis and Design 3

An examination of topics in algorithm design and analysis including sequential algorithm design and complexity analysis, dynamic programming, greedy algorithms, and graph algorithms. Also covers selected advanced topics from NP-completeness; approximation, randomized, parallel, number-theoretic algorithms; Fast Fourier Transform; computational geometry; and string matching.

IAC 621 Data Science 3

Problem-based learning introduction to data science, including programming with data; data mining, munging, and wrangling; statistics, analytics, and visualization towards scientific, social, and environmental challenges.

IAC 622 Big Data and Machine Learning 3

Big data definitions and characteristics, computing environment for big data management and processing, machine learning models and algorithms, and scaling up machine learning (high dimensionality reduction).

IAC 689 Capstone Project in Computational Analytics 3

Capstone course. Students work with local industries and nonprofit organizations to solve important data science problems under the supervision of a mentor.