Certificate in Data Visualization (12 credits)
Training Data Analysts and Business Intelligence Professionals

This certificate program will enable **data analysts** and **business intelligence professionals** to master the principles of visualization techniques for communicating insights from complex real-world data. These techniques will cover the gamut of the data science pipeline: transforming different types of data (e.g., spatial, temporal, abstract); conceptualizing diverse comparison, analysis, and communication tasks; learning perceptual and cognitive principles of data visualization; and implementing high-dimensional data visualization design strategies.

The curriculum focuses on both the theory and technologies behind visualizing complex data, designing interactive visual interfaces and optimizing the visual displays for focusing human attention on salient patterns in the data. Participants will learn how to transform large, complex data sets to interpretable visualizations, and how to best reflect the analytical tasks for facilitating experts' decision-making. The program consists of 4 courses of 3 credits each, taught over 2 semesters of 15 weeks each. Instruction includes formal lectures as well as hands-on projects involving visualization design and development.

In this program, we make extensive use of software tools like Tableau, and tools and libraries based on Python, R, and JavaScript. Students work on assignments and projects covering both theory and applications on real data with guidance from the professor and teaching assistants.

Recommended part-time credit schedule: First semester: 6, Second semester: 6. Total: 12 credits over two semesters.

Core (required) courses:
IS 650   Data Visualization and Interpretation
IS 657   Spatio-Temporal Urban Analytics

Sample electives:
IS 654   Visual Informatics for Network and Flow
IS 661   User Experience Design
IS 665   Data Analytics for Information Systems
IS 601   Web Systems Development
CS 634   Data Mining
Math 661   Applied Statistics
PTC 605   Elements of Visual Design
PTC 606   Advanced Information Design

Credit earned in this Certificate program can be used later towards the MS in Data Science degree.

Program Outcomes:
* Acquire design skills for ideating, conceptualizing, and developing visualization solutions.
* Develop visualizations for supporting data science projects end-to-end, including task and requirements elicitation, identifying business stakeholders and their interactions with the visualization and optimizing the resulting visual interfaces for reflecting their goals and desired actions.
* Learn to visually communicate and engage the audience to build trust in the data and resulting insights.

Tuition + fees for ALL students (independent of residency and visa status) at 2019-20 rates, assuming two courses per consecutive semester: Fall semester: $6,366. Spring semester: $6,366. Summer semester: $5,421.

Total tuition + fees for Certificate: Fall start: $12,732. Spring start: $11,787. Summer start: $11,787.

For more information, contact Tim Hart, ph: (973) 596-2911, (862) 234-5706, hart@njit.edu, or visit jerseycity.njit.edu