NJIT@JerseyCity

Certificate in Data Visualization

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 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 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 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 four courses of three credits each, (two core courses and two electives), typically taught over two 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 complete 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: six, Second semester: six. Total: 12 credits over two semesters. (Incl. summer)

Core (required) courses:

- IS 650 Data Visualization and Interpretation
- IS 657 Spatio-Temporal Urban Analytics

Sample electives:

- CS 634 Data Mining
- IS 601 Web System Development
- IS 661 User Experience Design
- IS 665 Data Analytics for Information Systems
- Math 661 Applied Statistics

To be eligible for admission to the certificate program, a candidate must hold an undergraduate degree with a minimum GPA of 2.6 on a 4.0 scale. A GPA of 2.75 on a 4.0 scale in the certificate program is required to earn the certificate.

Credit earned in this certificate program can be applied to a corresponding MS degree. A GPA of 3.0 in the certificate program is required to be eligible for admission into an M.S. program.

Program Outcomes:

- Acquire design skills for ideating, conceptualizing and developing visualization solutions.
- Develop visualizations to support 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.
- Visually communicate and engage the audience to build trust in the data and resulting insights.

For more information and to apply, contact:
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NJIT New Jersey Institute of Technology