Educating Data Literate Citizens

Panel

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LADS 2018 Workshop

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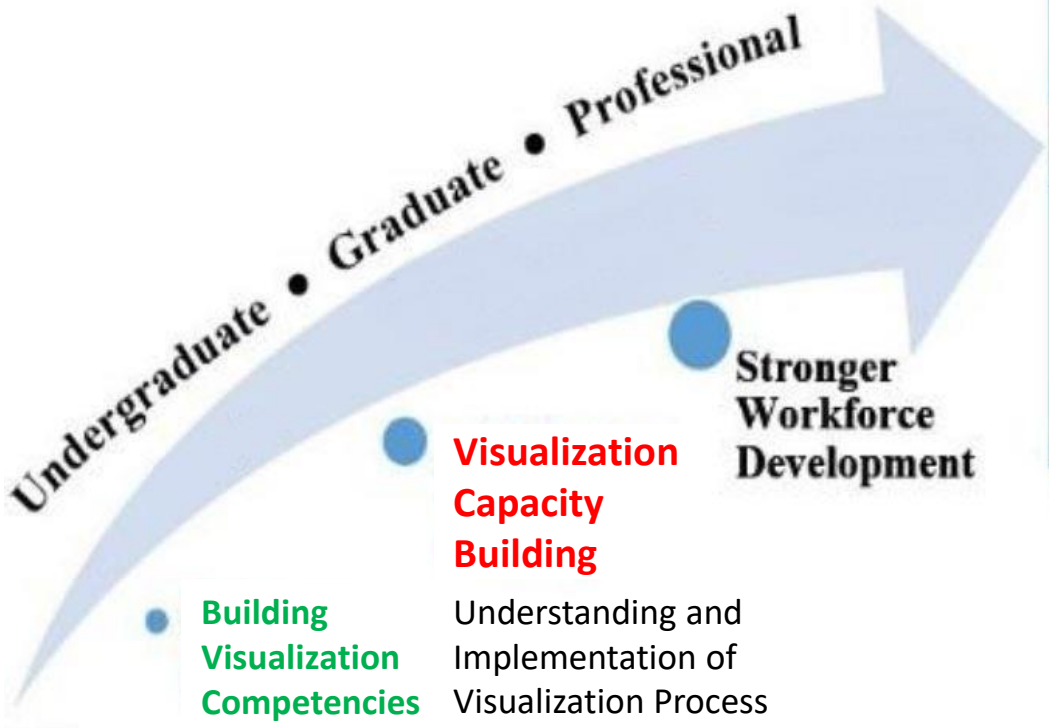
PURDUE
POLYTECHNIC

Visualization Capacity Building



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New Undergraduate Major: Data Visualization @ Purdue

CGT 27000

Introduction To Data Visualization

Credit Hours: 3.00. This course is designed for students with little or no background in Data Visualization. It provides an introductory examination of data visualization through lecture, readings and hands-on experience with current visualization tools. Students will obtain an overview of the various types of data, the fundamentals of the visualization process for information and scientific visualization, and examine detail visualizations workflows that aim to answer "when" (temporal data), "where" (geospatial data), "what" (topical data), and "with whom" (trees and networks) questions when visualizing data. After taking the course students will have both the theoretical foundation and practical skills needed to create insightful visualizations for a wide range of data types. Typically offered Fall Spring Summer.

This course is offered by the Department of Computer Graphics Technology

Plan of Study
https://polytechnic.purdue.edu/degrees/data-visualization/plan-of-study

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CGT 270 Data Visualization

Introduction to Data Visualization

No background in Data Visualization Assumed

Hands-on Exercises

Real-world problems

Semester Project

Socially Relevant Topics

- Big Data
- Opioid Data
- Chicago Crime Data
- Environmental Data

JPUR JOURNAL OF PURDUE UNDERGRADUATE RESEARCH

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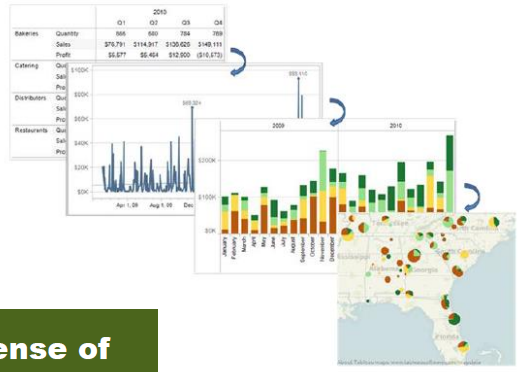
CGT 581 (Graduate)



SPRING 2018

CGT 581 DATA VISUALIZATION TOOLS AND APPLICATIONS

Course Overview

Data visualization is critical to understanding the content of data and is utilized in all levels of scholarship, but data is rarely ready for use directly for visualization and analysis. This course provides an overview of the data visualization process with hands on exercises that complement lectures, builds foundational knowledge and explores visualization tools and applications for making sense out of data (problem definition, planning, and data preparation). **Expected outcome**: Students who complete this course will gain experience determining the best way to represent different types of data, experience looking at data in many ways using a combination of data visualization tools, data analysis methods and how to reduce data for interpretation without sacrificing important information. **Tools will include**: Excel (Pivot tables and Pivot charts for manipulating large datasets), Tableau, Gephi along with commonly used visualization methods. Additional tools will be covered, time permitting, based on student interests and availability of datasets. **What to expect:** lectures (student-led), hands-on exercises with different types of data, case studies (visualization challenges) to reinforce lecture content, implementation of principles and methods for understanding and communicating data through the use of data visualizations, a look at open data visualization challenges. **Who should take this class**: Any person with an interest in data visualization.

Making Sense of Data

Visualization Design Principles

Hands-on Experience Visualizing Various Types of Data

Enroll in CGT 581 and learn how to transform your data into insight

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Integrating Data Visualization in the Liberal Arts

Collaborating with a member of the Liberal Arts Department to develop a cross-listed course for Computer Graphics Technology (CGT) students and Liberal Arts students

Anticipate: 10 CGT student, 10 Liberal Arts Students

Will explore socially relevant issues

Teams of two: one CGT student and one LA student

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Outreach Camps @ Purdue

CLAIMiT: Communicating Leadership and Advancing Innovation for Minorities in Technology (9^{th} – 12^{th} graders)

DOiT: Discovering Opportunities in Technology (11^{th} graders only)

TAGS: Technology Advanced Girl Scouts (6^{th}, 7^{th} and 8^{th} graders)

WOWiT: Windows of Opportunity for Women in Technology (9^{th} -12^{th} graders)

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[1] Degreed In Geek

It doesn't hurt to have degrees from top operations research, statistics or mathematics programs, such as those at MIT, Stanford, Harvey Mudd, Imperial College London, Cambridge University and the Indian Institute of Technology.

[2] Mathlete

Strong math skills are table stakes.

[3] Suit-Able

Has the know how and finesse to be a business leader. Today, data scientists can lead from the boardroom.

[4] Curiouser and Curiouser

Critical thinking and a relentlessly inquisitive nature are at the center of an analytic mindset.

[5] Agile and Adaptive

Versatile enough to apply their expertise to multiple industries, from retail to banking, Insurance to government, health care to airlines.

http://www.houghtoncdsa.org/liberal-arts-data-science-seriously/

[6] Problem Solving Prowess

A problem solver at heart who's able to devise creative solutions to real world problems. Knows how to define those problems precisely, spot elusive patterns and connect the dots.

[7] Insight Whisperer

Can develop unique insights, apply them to solve business problems, and explain them to business people in operations research.

[8] Quantastic

Successful data scientists come not only from pure math backgrounds, but also from such fields as engineering, statistics and economics. They have programming skills or the ability to learn programming languages and represent concepts via computer code.

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My Goal

- Integrate data visualization into the undergraduate curriculum
- Broaden Participation of Women and Members of Underrepresented Groups in Data Visualization

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