Course Syllabus: IT 7113 Data Visualization  
Kennesaw State University  
Jack Zheng, Fall 2019 - Last updated: Aug 18, 2019

Note  
This syllabus provides a general guideline for the conduct of this course. However, deviations may be necessary and will be notified during the semester.

Course Description

Data visualization is the visual and interactive exploration and graphic representation of data of any type. In many cases good visuals facilitate human comprehension and decision making based on data. It has become a fundamental piece in today’s analytics and business intelligence systems. This course covers data visualization concepts, practices, and tools particularly for analyzing and presenting business data. Students will evaluate, design, and develop effective visualizations and dashboards, using various development tools.

This course focuses more on technologies, systems, tools, techniques and solutions; other aspects, such as statistical analysis, data cleanse, software design, will be covered although not the focus of this course.

The course is an elective in our master certificate on data management and analytics.

Course objectives/learning outcomes

1. Discuss concepts and principles of data visualization particularly related to decision making.
2. Investigate technologies and practices for visualizing data as part of a data management and analytics system.
3. Apply design principles and practices to develop interactive data visualizations.
4. Design effective dashboard for information presentation and decision making.
5. Conduct research on relevant data visualization topics.

Course features (Fall 2019)

- Intensive hands-on experience with Tableau.
- Explore web-based data visualization tools and solutions.

Prerequisites

- Official requirement: IT 5433 Database Systems and IT 5443 Web Technologies and Application Development
- Recommended: IT 6713 Business Intelligence

Class meet time and location

87963 01 Hybrid W 5PM and 87967 Online W01

Instructor

Dr. Jack G. Zheng, Associate Professor, IT Department

Office: J-383  
Email: gzheng@kennesaw.edu (preferred)  
Phone: 470-578-5036

Office hours: W 2:00-5:00PM, online, or by appointment

Email Policy

1. Email is a great way of communication if you write the email subject like this: IT7113 – [put your real subject here]

   Emails will be responded within the next business day if the subject line conforms to the format above, and directly sent to my KSU email account above.

2. Per FERPA regulation, please use your university email to communicate with instructors. This can verify you identity and protect privacy. I reserve the right not to reply any email that I cannot verify sender’s identity.

   Emails without proper subject line or unverified sender address are likely to be categorized as spam, and are NOT guaranteed to be replied.
**Teaching style and belief**
Generally I follow the principles of active learning, which emphasizes on learners’ active participation and exploration. Please get more details here:
- [http://jackzheng.net/teaching/teaching-belief.cshtml](http://jackzheng.net/teaching/teaching-belief.cshtml)
- [http://jackzheng.net/teaching/student-comments.cshtml](http://jackzheng.net/teaching/student-comments.cshtml)

**Course Conduct**

**Course content/topics**
The course content is basically organized by learning modules. The following table is only a tentative overview of the course content and schedule. The more detailed and most updated schedule will be provided in a separate file in D2L.

<table>
<thead>
<tr>
<th>Learning Module #</th>
<th>Module</th>
<th>Topics/Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overview</td>
<td>Business data visual and the bigger context</td>
</tr>
<tr>
<td>2</td>
<td>Solutions and tools</td>
<td>Solutions, tools, technologies, and the industry</td>
</tr>
<tr>
<td>3</td>
<td>Foundation</td>
<td>Concepts and theories of data visualization</td>
</tr>
<tr>
<td>4</td>
<td>Charting 1</td>
<td>Most common and basics chart types</td>
</tr>
<tr>
<td>5</td>
<td>Charting 2</td>
<td>More chart/diagram types</td>
</tr>
<tr>
<td>6</td>
<td>Chart design</td>
<td>Best practices, examples, case studies</td>
</tr>
<tr>
<td>7</td>
<td>Location based visual</td>
<td>Location based visualizations, mapping</td>
</tr>
<tr>
<td>8</td>
<td>Dashboard</td>
<td>Digital dashboards and design principles</td>
</tr>
<tr>
<td>9</td>
<td>Dashboard design</td>
<td>Best practices, examples, case studies</td>
</tr>
<tr>
<td>10</td>
<td>Interactivity</td>
<td>Interactive features in visualizations</td>
</tr>
</tbody>
</table>

Each module provides a study guide which detailed learning objectives, readings, and tasks. It’s critical to follow these study guides. The time to complete each module varies. Generally, modules are designed on an average of 8 to 12 hours to complete (for most of the people who have met the prerequisites), depending on individual background and prior experiences. Generally all module tasks should be completed within one week from the corresponding class date, however, some required readings/research tasks must be completed by the planned class date. Please follow the study guides closely.

**Grading**

<table>
<thead>
<tr>
<th>Item</th>
<th>Points</th>
<th>Total Points</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quiz (2)</td>
<td>20</td>
<td>=&gt;90</td>
<td>A</td>
</tr>
<tr>
<td>Labs/assignments (4)</td>
<td>40</td>
<td>=&gt;80</td>
<td>B</td>
</tr>
<tr>
<td>Development Project</td>
<td>20</td>
<td>=&gt;70</td>
<td>C</td>
</tr>
<tr>
<td>Topic Research</td>
<td>20</td>
<td>=&gt;60</td>
<td>D</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100</strong></td>
<td>&lt;60</td>
<td>F</td>
</tr>
</tbody>
</table>

More details about each item will be provided in “Student Works” content sections in the D2L Brightspace. Generally all grades should be available within 10 days from the due date.

**Course Materials and Resources**

Official course website: D2L Brightspace [https://kennesaw.view.usg.edu](https://kennesaw.view.usg.edu)
- Refer to this website for all official teaching and learning materials and activities.
- It’s important to know how to use this learning management system for: following learning modules, submitting assignments, checking grades and feedback, downloading files, participating discussion boards, etc.
- Please check the course site regularly for important announcements and other issues.
Learning materials
- Open learning materials: http://idi.kennesaw.edu/it7113/ - This course is part of the Affordable Learning Georgia Textbook Transformation Grants which aim to lower the cost of learning materials. All materials presented on this site are free to the public (but may not be updated to this semester).
- Required textbook: none. There is no textbook assigned. All readings are assigned in each learning module.
- Recommended books (for additional reading and references):

Required software/hardware
- Tableau Desktop/Prep, free for students http://www.tableau.com/academic/students
- Text/code editor and web browser (for some HTML/JavaScript coding).
- Other software: software that can open Word/Power Point/PDF files and ZIP files.

Other readings and resources
- Other readings and resources will be suggested and posted for each week (module). Check D2L regularly.

General Class Policies for all of Dr. Jack Zheng’s Courses
!! Please view the separate document online at https://goo.gl/G0Qd83 or request a copy by email.

University Policies
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