Topics to keep in mind:

Exploration <> Explanation

Static <> Interactive

Visual perception concepts

Effective Data Visualization

Two-dimensional layering

Three-dimensional layering

Image selection

Important topics for data vis

Session 1

Exploration (high density of info) to Explanation (low density)

* Exploration
  + Understand the data
  + Highlight interesting and remarkable
  + Question: What
  + No single narrative or specific insights
  + High information density
* Explanation:
  + Explain and present connections
  + Questions: Why & How
  + Help to reveal the main story, show key findings
  + Lower information density
* For my persona, exploration (can evaluate data on its own)

Visual perception and cognition

* Create structure in the data with different methods
  + Color structure
  + Highlighting
  + Shapes
* Do not use to many visual clues, otherwise focus cannot be created
* Natural focus of human eye
  + Faces / Emotions
  + Colors
  + Shapes

Approach to create Data Vis

* Context understanding
* Choose Visuals
* Create Visual order (arrangement of graphs, structures)
* Direct attention (coloring, shapes, highlight, emotions)
* Create a story
  + Setup -> Create a scene, context
  + Development -> engage the audience with interaction
  + Climax
  + Resolution -> what to take home

Session 2

Effective Data Visualization

* Understanding the Context
  + Target audience specific message
    - Who, what and how?
    - Exploratory <> Explanation
    - User oriented, Clear, transparent, Consistent in appearance
* Choosing effective Visuals
  + Choose visuals which fit the data and the complexity understanding of the target group
  + See Session 2 slides for graph descriptions
  + Avoid:
    - Pie Charts
    - 3D Graphs
* Creating visual Order
  + Align
  + Use white space
  + Create contrast to set focus
* Drawing attention
  + Tools
    - Color -> use sparingly -> accessibility
    - Spacing
    - Bold
    - Size
  + Use
    - Do not overdo it
    - Consistent use
* Telling a story
  + Making a complex issue clear
  + Adding story means to describe certain aspects of the data in more detail
  + Add context
* Summary
  + Clear and understandable
  + Informative
  + Visual order
  + Attention directing
  + With a story

Session 3:

Static <> Interactive

* Static
  + All information at once
  + Visualizations on paper
* Interactive
  + Animated
  + Change data points
  + Movies are in-between static and interactive
  + Overview first, than zoom and filter on demand

Layering

* Put information into groups to manage complexity
* Two dimensional Layering
  + Only one level can be examined at one point
    - Linear & non-linear layering
* Three-dimensional layering
  + Opaque
  + Transparent coloring

Storytelling

* Create a story and make it interactive through layering
* Structure of a story
  + Setup
  + Development
  + Resolution
* Goal
  + Communicate for the audience
  + Keep it simple
  + Be authentic
* A story is important to increase the learning
* Tools:
  + Use graph descriptions
  + Explain the data
  + Give an overview

Session 5:

Communication with images

* Opportunities
  + Direct and fast non-verbal communication
* Risk
  + Only faster if all elements are clear
  + Can create additional mental work

Communication goal

* The goal defines the way the picture / visualization should be structured
* Options
  + Statistical
  + Geographical
* Always have you target group in mind
  + Is it appealing to them

Memory of the audience

* Data is hard to remember
* Meaning will remain

Structure of the visualization

* Create relevance
  + Show what we compare as an overview graphic
  + Create clear connection between title and graphic
  + Define the color category and keep it consistent
* Deepen the topic
  + Create more detailed information below
  + Create clear connection between sub-title and graphic
  + Confirm the initial thesis with deeper insights
* Summarize the topic

Credo

* Create accessibility
* Elaborate more clarity than simplicity
* Peel out the core
* Reward reading with new insights
* Provide the option to learn

Session 6:

Process to create a data visualization

* Inform
  + Create a vision for the project
* Prepare
  + Collect data
  + Construct personas
    - Policy Makers / Researchers / Journalists / Public
  + Communication scenario
    - High level information / scientific data / stories / easy-to-understand
* Explore
  + Understand the texture of the data
* Discover
  + Understand the content of the data
* Sketch
  + Create draft concept visuals
* Question
  + Verify the selected visualization
* Design
  + Create the specification for implementation
* Develop
  + Build an application
* Evaluate
* Deliver