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INFORMATION
TECHNOLOGY

FIT3179 Data Visualisation

Week 12: Exam discussion

GROUP OF EIGHT AUSTRALIA

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Visualisation and report due **19 October 2018, 11:55 PM**.

Read on Moodle Assignment file with:

- Instructions for the final report.
- Final visualisation marking rubric
- Final report marking rubric

Discuss your visualisation and report with your tutor in the regular tutorial hour!

Student Evaluation of Teaching and Units (SETU)

Please provide feedback.
Take 5 minutes to fill out the SETU form on Moodle.

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Lecture Overview

- Obtain an insight into the final exam and preparation strategies
- Revise each week of the semester for important visualisation theories, concepts and examples

Exam Overview

The exam is designed to test your understanding of the material we have covered in the lectures and applied in the tutorials.

The sample exam can give you an indication of the level of knowledge and understanding you're expected to have reached.

Exam Overview

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- You may be required to
  - Recall key facts from the course (multiple choice)
  - Explain concepts (short answer)
  - Critique a visualisation
  - Suggest improvements
  - Design a visualisation

Exam Revision Techniques

- Review the lecture notes – they cover the key material and provide reference to the texts. Note that some weeks have two slide sets.
- The following slides provide details about what is included in the exam.
- Review the tutorial material – the tutorials are designed to cover all the important areas.
- Complete all homework activities – they get you applying important concepts.
- Complete the sample exam question provided on Moodle (Week 12 page).

Exam Format

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- 5 multiple choice questions (10 marks)
  - Related to theory covered in lectures
- 12 knowledge questions (29 marks)
  - Related to theory covered in lectures
- 6 critical analysis and discussion questions (36 marks)
  - In each question a visualisation is given. Identify issues and discuss relevant theory.
- 3 visualisation of data questions (25 marks)
  - Propose an approach to visualising a data set

- NO 'CHEAT SHEETS' ON THE EXAM
  - Munzner's summaries not available on the exam
  - You should use these as revision before the exam though

Exam Topics

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- The exam may cover topics from all weeks
  - Except week 9 (CAVE tour) and the guest presentation on SandDance
  - Guest lectures by Maxime Cordeil and Yalong Yang are examinable.
- While focus is on discussion of information visualisation principles, it is also important to demonstrate the ability to apply them.
- Use the lecture slides as a basis for revising content
- Read chapters indicated on slides in textbook
- Required Readings on Moodle
- Bring coloured pencils to make it easier to draw nice visualisations.

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- What do we mean by Information Visualisation?
- Why is it important in today's age?
- Choropleth maps (second slide set)
- Not in exam: The history of Information Visualisation

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- What, Why, How framework by Munzner
- Data attributes
- Dataset types
- Five design sheet methodology

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- Marks and channels
  - Accuracy of channels for quantitative data
  - Visual encoding of data
- Idiom design choices
  - Tables: Scatterplot, bar charts, etc.
  - Networks and trees: node-link diagram, etc.

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- Data-ink ratio
- Chartjunk, debate regarding visual embellishments
- Visual narratives and storytelling
- Gestalt principles
  - Including required reading: *Gestalt principles of visual perception* by Cole Nussbaumer Knaflic (PDF on Moodle)
- Lying with Visualisations
  - Including required reading: *A Quick Guide to Spotting Graphics That Lie* (link on Moodle)
- Micro-Macro readings

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- Map projections
- Idioms for spatial maps
- See required readings on Moodle
  - Dot Density Maps by axismaps
  - Choropleth Maps by axismaps
  - Proportional Symbols on maps by axismaps
  - Using Colors on Maps by axismaps

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- Colour spaces
- Effective use of colour for data visualisation
- Required reading

  Lisa Charlotte Rost: What to consider when choosing colors for data visualization URL Edit title
- Visual Hierarchy with Figure-Ground
- Layout
- Typography
- Label Placement

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- More idioms
  - Iostype (including the study evaluating the effectiveness of Isotype elements)
  - Venn diagram
  - Radar chart
  - Chord diagram
  - Sankey diagram
  - Alluvial diagram
  - Network diagram
- Data classification (second slide set)
  - Why is it useful? What techniques exist?
  - Required reading: The Basics of Data Classification URL by aximaps

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- Visualisation Tools
  - Excel
  - Google Charts
  - Leaflet
  - D3
  - Vega
  - HTML, JavaScript, CSS, SVG

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- Guest lecture by Maxime Cordeil
  - Scatterplots
  - Dimension reduction
  - Parallel coordinate plots
  - Immersive analytics
  - ImAxes
  - Tangible interaction devices for immersive visualisation

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- We went to see CAVE2: not part of the exam

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- Yalong Yang's guest lecture
  - Scalability of origin-destination flow maps
  - MapTrix
  - Flat maps, curved maps, egocentric globes and exocentric globes
  - Origin-destination flow maps in virtual reality

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- The role of interactivity to allow greater understanding of data
- What interactivity can help with
- Techniques that can be used to allow exploration of data
- Read Munzner Textbook Chapter 11 - Manipulate View

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- Clayton students: No lecture.

Thank you, study hard
and Good Luck on the exam
(it will be easy if you are prepared)