Modelling and Visualisation

CODE1161

Lectures: 2pm, Tuesdays, Old Main Building 144
Tutorials 3-6pm Tuesdays, Squarehouse 203, 205, 206,
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1. Course Description

In this course students are introduced to representation and visualisation techniques by combining industry standard Adobe Suite and Processing software applications. The lecture series covers topics such as principles and elements of design, colour, pixels, vector graphics, typography, layout, format and production, environmental and experiential graphic design, infographics and information design, symbols, visual literacy, interactivity, design context, cartography and map design. CODE1161 will offer students the necessary skills to represent and present design concepts and research. On successful completion of the course students will have developed a foundational knowledge of digital visualisation techniques within the computational design discipline.

This course is conducted via a lecture series, face-to-face tutorials, online software tutorials, design project briefs and an online quiz.

Lecture Series

The lecture series is run weekly from 2-3pm on Tuesday’s and requires 80% attendance to pass the course. A roll will be taken at the beginning of the lecture. See 5. Lecture Series for more information.

Face-to-Face Tutorials

The weekly face-to-face tutorials are run from 3-6pm on Tuesday’s and require 80% attendance to pass the course. A roll will be taken at the beginning of the tutorials. Tutorial time is for presenting project submission requirements, project critique/feedback and assistance with any issues you have completing the online tutorials.

Weekly online tutorials

Each week during the session you are required to complete a set of online tutorials prior to the lecture. See 7. Online Tutorial Schedule for more information.

Design Project Briefs


Online Quiz

In Week 13 you will have a computer-generated multiple-choice test based on the Lecture Series. A mark of 80% is required to pass the course.

2. Course Staff and Contributors

<table>
<thead>
<tr>
<th>Course Convenor: Briedy Mahar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Room: 2009 L2, Red Centre West</td>
</tr>
<tr>
<td>Email: <a href="mailto:b.mahar@unsw.edu.au">b.mahar@unsw.edu.au</a></td>
</tr>
<tr>
<td>Consultation times: 10-12pm Tuesdays only</td>
</tr>
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</table>

| Other Teaching Staff: Raffaello Rosselli |
| Consultation times: During tutorial sessions only |

| Other Teaching Staff: Homa Rahmat |
| Consultation times: During tutorial sessions only |
3. Course Communication

The majority of course related communication will be made in the lectures. It is essential that you attend the lectures to receive these announcements. In addition to these formal communication channels, online discussion forums will be available that will enable students and your lecturer to post questions and respond. All students are expected to participate in the online discussions.

Individual student related communication, including assessment grades and feedback, is via the course Moodle site. Student email (your UNSW student account) will be used to communicate changes that occur at short notice. All students are assigned an email account on the University's server, so that email will be used as the primary means by which important correspondence is made. It is your responsibility to check your UNSW email account daily.

Details on setting up your university email are provided at:
https://www.it.unsw.edu.au/students/index.html

To manage your UNSW accounts and passwords, use the IDM site:
https://idm.unsw.edu.au/idm/user/login.jsp

Questions that require attention are best handled by posting a message on the online forums. If there are matters that require a personal meeting, you are able make an appointment with:

Briedy Mahar on Tuesday mornings between 10am-12pm only. Appointments can be via email b.mahar@unsw.edu.au.

4. Course Online Components

Each week a new link will be posted to the Moodle site in preparation for the next week. It is expected that you complete that weeks’ online tutorial requirements prior to the next weeks lecture.

Each week’s link will provide:
- The topic of the week
- Software tutorial links
- Links to relevant resources
- Links to examples and benchmarks
- Required tasks for your tumblr tutorial blog

Moodle

A large part of your learning and research within this course will be conducted online through Moodle.

Moodle is our primary online platform and repository for:
- Student communication
- Course outline
- Project briefs
- Online tutorials links
- Online resources
- Project submission links
- Online quiz
- Assessment criteria
- Assessment grades
- Week 15 parity submissions

Your access to the course Moodle site is linked to your enrolment and can be located at:

Ensure you have signed in and familiarised yourself with Moodle prior to attending the first lecture as it is expected that you will be able to navigate the site from the first tutorial session.
Tumblr – Course Blog

Tumblr is a microblogging platform and social networking website, where you can post images, text, code, pdfs, screenshots, ideas, quotes and links to other blogs just to name a few. As part of your online tutorial and project submission requirements you are required to set up a course blog using tumblr and your UNSW email address. You can do this here:

https://www.tumblr.com

Your tumblr blog is course specific, where only material related to CODE1161 tutorials and projects should be posted and or linked to. Even if you already have a personal account you need to create a new one.

Each week you will post your online tutorial requirements as per the online tutorial schedule and project submission requirements as per the project briefs.

Pinterest – Project Mood Boards

Pinterest is a web based mood board or design sketchbook tool for digitally sourcing, collecting, sharing, and storing visual imagery. The application allows you to create and share collections of visual images ‘pinned’ from the web or uploaded through your account.

You are required to set up a pintrest account using your UNSW email address and create a design sketchbook/moodboard for your project submissions. You can do this here:

https://www.pinterest.com

Ensure you set up a new board per project brief. Additionally, ensure that you and are the only one who can pin to your boards.

Vimeo – Project 3 Upload

Vimeo is a video-sharing website in which users can upload, share and view videos. You are required to create a Vimeo account using your UNSW email address here:

https://vimeo.com

You are required to upload your project 3 submission to vimeo.

Moodle Submissions - Week 15 Parity

Images for the Week 15 parity session / Moodle submission can be uploaded to the Moodle Gallery by:

- From the course home page, click the media collection link.
- In the collection page, click the Edit icon 🐨 for the gallery to which you want to begin adding items.
- On the gallery's home page, click Add an item.
- On the resulting page, click Expand all, then in the General section:
  - Enter a Caption for the item.
  - Add any Description necessary.
  - Drag and drop a Content file, or click Choose a file and browse for a file.
  - In the Advanced section, complete all the relevant fields.
  - Click Save changes. The item displays with its thumbnail and caption on the galleries page.

See sections 5. Lectures - Week 15 and 17. Parity Session for more information.

Social Network Resources

UNSW CoDe has a Twitter, Instagram, Facebook and Youtube account and all lecturers are using these accounts to share information with their students. Thus please join and follow us on @UNSWCoDe (for all above listed networks) we will use “UNSW” + “CODE” + the course number as a hashtag to help find the relevant info (for this course #UNSWCODE1161). Feel free to post images of your designs on social media using the hashtag.
## 5. Lectures Series

### Week 1

<table>
<thead>
<tr>
<th>Lecture 1A: Course Welcome and Overview</th>
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<tbody>
<tr>
<td>Lecture will cover an introduction to the course, overview of course outline, expectations, project briefs and submission requirements.</td>
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<tr>
<th>Lecture 1B: Principles &amp; Elements of Design</th>
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<tr>
<td>Lecture will cover an overview of design elements: point, line, shape, form, tone, texture, colour and design principles: unity, balance, contrast, hierarchy, scale, proportion, pattern.</td>
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**Online Learning:** Moodle login and access

**Tutorial Activities:**
- **Briefing:** Project 1: Communicating – including generating data sets
- **Overview:** Online Tutorials Stage 1: Communicating + tumblr blog requirements.

### Week 2

<table>
<thead>
<tr>
<th>Lecture 2A: Colour</th>
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<tr>
<td>Lecture will cover colour theory, the colour wheel, colour palettes, colour treatments, and colour systems.</td>
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<tr>
<th>Lecture 2B: Pixels [images]</th>
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<tbody>
<tr>
<td>Lecture will cover sourcing images, pixels, resolution, screen grabs, scaling, cropping, brightness, contrast, hue, saturation, retouching, sharpening, noise, distortion, cloning, levels, blending, photomontage and creative image techniques: pixelate, words and pictures, halftone, overprinting, framing, outlining, extreme crop, mirror images, black/white</td>
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</tbody>
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**Online Learning:** Stage 1: Communicating Tutorials [Photoshop] + tumblr blog requirements

**Tutorial Activities:**
- **Submission 1:** Project 1: *Communicating Data* 10%
- Assistance with Stage 1: Communicating Tutorials [Photoshop]

### Week 3

<table>
<thead>
<tr>
<th>Lecture 3A: Vector Graphics</th>
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<tr>
<td>Lecture will cover vector lines, shapes, stroke, fill, radiate, illustrations, patterns, design communication, diagrams, technical drawings, plans, elevations, sections.</td>
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<thead>
<tr>
<th>Lecture 3B: Typography</th>
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<tr>
<td>Lecture will cover letterforms, history, ligatures, serif, sans serif, type in context, visual language, how to pick type for a context, icons, logos, brands, symbols, glyphs, font resources.</td>
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</tbody>
</table>

**Online Learning:** Stage 1: Communicating Tutorials [Illustrator] + tumblr blog requirements

**Tutorial Activities:**
- **Submission 2:** Project 1: *Communicating Data* 10%
- Assistance with Stage 1: Communicating Tutorials [Illustrator]

### Week 4

<table>
<thead>
<tr>
<th>Lecture 4A: Layout</th>
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<tbody>
<tr>
<td>Lecture will cover composition, grids, columns, margins, bleed, guides, masters, proportion and consistency, balance, golden proportions, rule of thirds, hierarchy, rhythm, unity, positive and negative space, tables, placing images, placing illustrations, outlining text.</td>
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<table>
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<tr>
<th>Lecture 4B: Format and Production</th>
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<tbody>
<tr>
<td>Lecture will cover format, folds and binding, book files types, imposition, magazines, poster, poster wraps, stationery, brochure, bellybands, production, exporting pdfs, packaging files, for print, for web, for pdf, file transfer, stock, paper sizes, finishing, printing techniques, diecut, spot vanish, perforation, inserts, embossing, debossing,</td>
</tr>
</tbody>
</table>

**Online Learning:** Stage 1: Communicating Tutorials [InDesign] + tumblr blog requirements

**Tutorial Activities:**
- **Submission 3:** Project 1: *Communicating Data* 10%
- Assistance with Stage 1: Communicating Tutorials [InDesign] + mounting demonstration.
### Week 5

**LECTURE 5: Environmental / Experiential Graphic Design**  
Lecture will cover exhibition graphics, wayfinding, information design, entertainment environments, retail design, map and information design.

**Online Learning:** Stage 1: Communicating Tutorials + finalisation of tumblr blog requirements  
**Tutorial Activities:**  
- **Final Submission:** Project 1: Communicating 70% – Exhibition  
- **Briefing:** Assignment 2: Visualisation

### MID SEMESTER BREAK

### Week 6

**BE NON TEACHING WEEK**

**Online Lecture**  
**LECTURE 6: Welcome to Processing**  
http://hello.processing.org/editor/

**Online Learning:**  
Stage 2: Visualisation Tutorials - Intro to Processing for Data Viz – 1-12 + tumblr blog requirements

### Week 7

**LECTURE 7: Infographics and Information Design**  
Lecture will cover history of infographics, types, time-series data, statistical distributions, maps, hierarchies. Flowchart, timeline, data visualisation, photo infographic, demographics, line chart, bar chart, histogram, scatterplot, box plot, pareto chart, pie chart, area chart, tables.

**Online Learning:**  
Stage 2: Visualisation Tutorials Intern. Processing for Data Viz - 1 - 6 - Dynamic Line Graph, pt 1 – 6 Intern. Processing for Data Viz – 7 – 13 + tumblr blog requirements  
**Tutorial Activities:**  
- **Submission 1:** Project 2: Visualising Data 10%  
- Assistance with Stage 2: Visualisation Tutorials

### Week 8

**LECTURE 8: Symbols, Visual Literacy**  
Lecture will cover history of symbols, symbols in mythology, vocabulary symbols, digital symbols, body-language symbols, gender symbols, and international symbols. History of visual literacy, grammar, syntax and semantics of visual literacy, scale, dimension, boldness, arrangement, framing, motion, depth, dimension, colour, light, shadow, perspective, relative size of items within images, line, shape, direction, tone, scale, balance, harmony, contrast, emphasis, manipulation, rhythm, illumination, resemblance, visual/text relationship, foreground, background.

**Online Learning:**  
Stage 2: Visualisation Tutorials: Polar Coordinates, pt 1 – 7 + Intern. Processing for Data Viz – 14 - 21 - Putting it all together, pt. 1 – 8 + tumblr blog requirements  
**Tutorial Activities:**  
- **Submission 2:** Project 2: Visualising Data 10%  
- Assistance with Stage 2: Visualisation Tutorials

### Week 9

**LECTURE 9: Interactivity**  
Lecture will cover interactivity, interaction styles, interaction patterns, visualisation techniques, goal oriented design, personas, cognitive dimensions framework, ixD, 1D words, 2D Visual representations, 3D Physical space and objects, 4D time, 5D behaviour, human factors and ergonomics, industrial design, user goals and experience, affective influence, ubiquitous and urban computing, service design, user centred design.

**Online Learning:**  
Stage 2: Visualisation Tutorials + finalisation of tumblr blog requirements  
**Tutorial Activities:**  
- **Final Submission:** Project 2: Visualising Data 80% - Presentation  
- **Briefing:** Assignment 3: Contextualisation
**Week 10**

Lecture will cover definition of experience design, XD, processes, product, services, events, environments, commercial context, broader context, inclusive design, universal design, definition of user interface design, direct manipulation, graphical user interface, web-based user interfaces, touchscreens, hardware interface, text-based interface, object oriented user interfaces, usability ISO9241, clarity, discriminability, conciseness, consistency, detectability, legibility, comprehensibility, function, user task assessment, information architecture, usability testing, graphical user interface.

**Online Learning:**
Stage 3: Contextualisation Tutorials - Adv. Processing for Data Viz – 1 - 8 - APIs, pt. 1 – 8 + tumblr blog requirements

**Tutorial activities:**
Submission 1: Project 3: Contextualising Data 10%
Assistance with Stage 3: Contextualisation Tutorials

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**Week 11**

Lecture will cover definition for context in design, stereotypes, device context, environmental context, time context, activity context individual context, physical context, location context, social context, primary, secondary context, context design principles, user context, modelling context, who, what, when, where why, user research methods, user experience, context in the design process, contextualised vs decontextualised design.

**Online Learning:**

**Tutorial activities:**
Submission 2: Project 3: Contextualising Data 10%
Assistance with Stage 3: Contextualisation Tutorials
Student CATEI surveys

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**Week 12**

Lecture will cover history of cartography, types of maps, thematic, topographic, cartogram, contour map, cadastral, city maps, google maps, pictorial maps, aerial photography, animated mapping, GIS, map projection, map design principles, visual contrast, legibility, figure ground organisation, hierarchy organisation, naming conventions, map symbology styled maps, tracing, mapping and notation.

**Online Learning:**
Stage 3: Contextualisation Tutorials + finalisation of tumblr blog requirements

**Tutorial activities:**
Critique and feedback on Project 3: Contextualising Data
Assistance Stage 3: Contextualisation Tutorials
Student CATEI surveys

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**Week 13**

Lecture will cover data visualisation examples collected through pintrest and tumblr by the students, lecturer and tutors during the course of the session. It is a show and tell / discussion forum.

**Online Learning:**
Stage 3: Contextualisation Tutorials + finalisation of tumblr blog requirements

**Tutorial activities:**
Final Submission: Project 3: Contextualising Data 80%
Informal discussion: Feedback and course evaluation – last 30 minutes

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**Week 15**

**MONDAY**

Presentation of all work of all courses (ARCH1101 / CODE1110 / CODE1150 / CODE1161) via a selection of the five best images presented one poster for each course on Wednesday in Week 15 with deadlines below. See Chapter 17. Parity Session for detailed information.

**Programme:**
Parity session set up for students from 10 – 2pm;
Parity session for tutors between 2 – 6pm;
Take down of work and drinks to celebrate semester 6 – 8 pm.
6. Design Projects

A. Ludd Letterpress System, Poster
B. Geray Gencer Why Nations Fail

Project 1: Communicating Data

‘Designers can create normalcy out of chaos; they can clearly communicate ideas through the organizing and manipulating of words and pictures.’
Jeffery Veen, Vice President of Products for Adobe Creative Cloud

“To design is to communicate clearly by whatever means you can control or master”
Milton Glaser, I ♥ NY logo

As designers it is our role is to be able to communicate effectively to our audience. Be it to our peers, a client or a consumer market. Whether, we are communicating a design concept, product story or complex statistical information, it is integral that we employ the highest standard of visual communication techniques. This allows us to present ourselves in a design context and provides a platform for design discourse and communication.

Project Aims

The aims of this project are to:

1. provide the framework for design concept and presentation techniques within a design context.
2. give an introduction to representation and visualisation techniques with a direct emphasis of the application of real-world data.

Project Brief

In this project you are required to produce a 2 x A2 poster series to visually represent your data set. Every aspect and design decision represented on your poster series should fully emulate and communicate the essence and statistical information of a data set produced by you on The City of Sydney website. *See below for instructions on how to do this. Your A2 posters are to be designed and produced through the use of Adobe software InDesign, Illustrator, Photoshop and Acrobat. Complete the Stage 1: Communicating Tutorials to master the skills required to complete this assessment. Use the concepts and adobe skills explored in the online tutorials as inspiration to design, format and produce your posters.

City of Sydney data sets

The projects in this course are based on a set of data generated by you via the City of Sydney data source website http://profile.id.com.au/sydney/data-export.

Be sure to generate your data carefully following these criteria:

**Usual Residence**

**Years:** 2011, 2006, 2001

**Topic:** select 1 only

**Data Items:** minimum of 5

**Data Geographical Areas** minimum of 5

**Export** your data set and download a csv file. The file can be opened and manipulated in Excel. **NOTE:** Be sure to save a master file in case you need to go back to the raw data.
Project Deliverables

Submission 1 - 10% of mark
Due: Week 2

Area of Research Statement [500 words]: Write a 500-word statement outlining your data set; include the specifics of the dataset - data type, years, topic and data items, geographical areas. Be sure to include 5 key reference links that are relevant to your data set. This is to be posted to your tumblr blog.

Visual Benchmarking Analysis: You are to develop a mood board of your visual benchmarking research on pintrest and post a link to your tumblr blog. Your research into imagery relevant to the visual communication of your data set can include but is not limited to the following areas: physical environment, domestic lifestyle, work lifestyle, travel, peers, products, services.

This is to be posted to your tumblr blog before the lecture. You are required to verbally present this week’s submission to your tutor during the tutorial. You may use your laptop as a visual aid.

Submission 2 – 10% of mark
Due: Week 3

As designers we use a set of visual tools known as the elements and principles of design to communicate effectively. As part of your research and visualisation of your dataset you are required to produce:

Visual detailing – a design elements series - point / line / shape / form / tone / texture / colour / type / hand drawn element

Visual compositions – a design principles series - unity / balance / contrast / hierarchy / scale / proportion / pattern

This is to be posted to your tumblr blog before the lecture. You are required to verbally present the submission to your tutor during this week’s tutorial. You may use your laptop as a visual aid.

Submission 3 – 10% of mark
Due: Week 4

As a designer it is important to be able to communicate and express complex information effectively. Often the information is dense and requires organisation that represents the information accurately. However it is also our role to visually communicate by employing the aesthetics of a design concept or within brand guidelines.

As part of your research and visualisation of your dataset you are required to produce:

Graphical representation of your data set in tabular [table] format that employs your elements and principles of design.

Graphical representation of data set in chart format that employs your elements and principles of design.

This is to be posted to your tumblr blog before the lecture. You are required to verbally present the submission to your tutor during this week’s tutorial. You may use your laptop as a visual aid.

Final Submission – 70% of mark
Due: Week 5

The poster presentation will be held as an exhibition format where you are required to print and mount your submission on foamcore and hold an exhibition within the studio/tutorial space in week 5.

Your 2 x A2 poster series must contain the following:

• Area of Research statement [500 words]
• Visual Benchmarking Analysis – a curated selection of images, ensure images are a minimum of 300dpi
• Visual detailing – design elements series
• Visual compositions – design principles series
• Graphical representation of data set in tabular form
• Graphical representation of data set in chart form
• Full bleed colour, printed, cropped and mounted on 5mm foamcore board.
• Is produced via hand drawn elements and Adobe software programs.

Your Moodle submission must meet the following requirements:

• Upload: Highres pdf of poster series – without crop or registration marks.
• Link: to Pintrest moodboard
• Link: to Tumblr blog – tutorial and project submission requirements.

Look at these references for inspiration:

• Week 1-4 Lecture Series
• Stage 1: Communicating Tutorials
• See 12. Resources – online resources
Project 2: Visualising Data

‘The purpose of visualization is insight, not pictures’.
Ben Shneiderman, Professor of computer science at the University of Maryland Human-Computer Interaction Lab at the University of Maryland, US

‘Numbers have an important story to tell. They rely on you to give them a clear and convincing voice’.
Stephen Few, author, innovator, and educator

Project Aims

The aims of this project are to:

1. provide the framework for design concept and presentation techniques within a design context.
2. give an introduction to representation and visualisation techniques with a direct emphasis of the application of real-world data.

‘Big Data is a powerful discovery tool for companies seeking to glean new insights. But without the right framework for understanding it, much of that knowledge may go unrecognized. Oftentimes, it’s data visualization that allows Big Data to unleash its true impact.’


Project Brief

Project 1: Communicating Data provided you with the framework to determine a visual design language and methods for refining a set of design elements and principles for your data set. In this project you are required to produce 5 different data visualisations to represent your data set through the use of processing.org and present these as a digital presentation to the class in week 9.

Complete Stage 2: Processing Tutorials Introduction and Intermediate to master the skills required to complete this assessment. Once you have completed these tutorials use the concepts and processing skills taught as inspiration to design and program 5 data visualisations using your data set [5 minimum].

This assignment requires you to utilise and build on the design language of Project 1: Communicating Data and develop data visualisations in processing.org. Every design decision you make in the processing.org application should be founded on the design elements and principles and visual communication techniques relevant to your data set. Your data visualisations should be presented in a design context using design skills and design presentation standards presented in the lecture series.
Project Deliverables

Submission 1 - 10% of mark
Due: 2pm Week 7

Concept statement [500 words]: Write a 500-word concept statement in which you define your design ideas for visualising your data set through the use of the Processing software. A concept is an overarching idea that governs every aspect and decision of a design project. A design concept statement is a written communication in which designers describe their plans for a design. The concept statement clearly and efficiently communicates the approach of the designer to visually communicate the data set through Processing for data visualisation. It outlines what the design intentions are and strategies for how the designer intends to achieve them. You should use the requirements of the brief as a guideline for the specific aspects you should consider in your concept statement. Your statement should clearly describe your unique approach to the project at hand. Avoid unclear, abstract statements that don’t include a clear goal for your data visualisations. DO NOT mention that this is an assignment or you are completing the project because your lecturer or tutor has asked you to. Also avoid overly lengthy statements. Try to say as much as you can in the fewest words possible.

This is to be posted to your tumblr blog before the lecture. You are required to verbally present the submission to your tutor during this week’s tutorial. You may use your laptop as a visual aid.

Submission 2 – 10% of mark
Due: 2pm Week 8

Visual Benchmarking Analysis: You are to develop a mood board of your visual communication research and data visualisation examples relevant to your data set on pintrest and post a link to your tumblr blog. Include at least 100 visual images and 20 relevant examples of data visualisations that you can draw inspiration from to complete the project.

This is to be posted to your tumblr blog before the lecture. You are required to verbally present the submission to your tutor during this week’s tutorial. You may use your laptop as a visual aid.

Final Submission – 80% of mark
Due: 2pm Week 9

You are required to produce an interactive digital presentation representing the design and development of your 5 data visualisations for your data set. The digital presentations will be held within the studio/tutorial space in week 9.

Your digital presentation must contain the following:

- Concept statement
- Benchmarking – research into visual communication relevant to visualisation of data
- Hand sketches and design development
- 5 x data visualisations - Interactive Processing animation representing your data set

Your Moodle submission must meet the following requirements:

- Upload: processing code as a zip file.
- Upload: Interactive pdf file you present to your tutorial class in week 9.
- Link: to Pintrest moodboard
- Link: to Tumblr blog – tutorial and project submission requirements.

Look at these references for inspiration:

- Week 1-8 Lecture Series
- Stage 1: Communicating Tutorials & Stage 2: Visualisation Tutorials
- See 12. Resources – online resources
Project 3: Contextualising Data

'Without context, data is useless, and any visualisation you create with it will also be useless. Using data without knowing anything about it, other than the values themselves, is like hearing an abridged quote secondhand and then citing it as a main discussion point in an essay. It might be okay, but you risk finding out later that the speaker meant the opposite of what you thought.'

*Understanding Data – Context - Big think blog*  

Project Brief

*Project 2: Visualising Data* provided you with the framework to design and program data visualisations with a distinct and relevant design language and visual communication elements for your data set. In this project you are required to produce a contextualised data visualisation to represent your data set through the use of processing.org and present these as a 3 minute film presentation uploaded to vimeo to the class in week 13.

Complete **Stage 3: Processing Tutorials** to master the skills required to complete this assessment. Once you have completed these tutorials use the concepts and processing skills taught as inspiration to design and program data visualisations that contextualise your data set to its location in the City of Sydney through the use of mapping plug ins.

This project requires you to utilise and build on the design language of *Project 1: Communicating Data* and processing skills of *Project 2: Visualising Data* and develop contextualised and location specific data visualisations in processing.org. Every design decision you make in the processing.org application should be founded on the design elements and principles and visual communication techniques relevant to your data set. Your data visualisations should be presented in a design context using design skills and design presentation standards presented in the lecture series.

Your films should tell the story of your data set, your research, visual benchmarking, concept, process of design and development and the data visualisation you have created in processing.
Project Deliverables

Submission 1 – 10% of mark
Due: 2pm Week 10

Concept statement [500 words]: Write a 500-word concept statement in which you define your design ideas for visualising your data set in context through the use of the Processing software. A concept is an overarching idea that governs every aspect and decision of a design project. A design concept statement is a written communication in which designers describe their plans for a design. The concept statement clearly and efficiently communicates the approach of the designer to visually communicate the data set through Processing for data visualisation. It outlines what the design intentions are and strategies for how the designer intends to achieve them. You should use the requirements of the brief as a guideline for the specific aspects you should consider in your concept statement. Your statement should clearly describe your unique approach to the project at hand. Avoid unclear, abstract statements that don't include a clear goal for your data visualisations. DO NOT mention that this is an assignment or you are completing the project because your lecturer/ or tutor has asked you to. Also avoid overly lengthy statements. Try to say as much as you can in the fewest words possible.

This is to be posted to your tumblr blog before the lecture. You are required to verbally present the submission to your tutor during this week's tutorial. You may use your laptop as a visual aid.

Submission 2 – 10% of mark
Due: 2pm Week 11

Visual Benchmarking Analysis: You are to develop a mood board of your visual communication research and data visualisation in context examples relevant to your data set on pintrest and post a link to your tumblr blog. Include at least 100 visual images and 20 relevant examples of data visualisations in context that you can draw inspiration from to complete the project.

This is to be posted to the course blog before the lecture. You are required to verbally present the submission to your tutor during this week's tutorial. You may use your laptop as a visual aid.

Final Submission – 80% of mark
Due: Week 13

You are required to produce a film presentation to digitally represent your data set in context through the use of processing. The digital presentations will be held within the studio/tutorial space in week 13. This is to be uploaded on to Vimeo and posted to Moodle before the lecture.

Your Vimeo film presentation must contain the following:

- Concept statement
- Benchmarking – research into data visualisation in context to their data.
- Hand sketches and evidence of design development
- Interactive Processing.org animation representing your data set in a location context via the use of plug ins.

Your Moodle submission must meet the following requirements:

- Upload: processing code as a zip file.
- Upload: 3 minute vimeo file to present to your tutorial class in week 13 – must be uploaded prior to the lecture.
- Link: to Pintrest moodboard
- Link: to Tumblr blog – tutorial and project submission requirements.

Look at these references for inspiration:

- Week 1-12 Lecture Series
- Stage 1: Communicating Tutorials & Stage 2: Visualisation Tutorials &
- Stage 3: Conceptualisation Tutorials
- See 12. Resources – online resources
7. Online Tutorial Schedule

Week 1
Moodle

Stage 1: Communicating - Adobe

Adobe is an industry standard platform of programs used by designers to visually communicate and graphically represent their work for digital and print applications. There are only 5 weeks allocated to develop the necessary skills in Adobe to complete Project 1: Communicating Data. Student Adobe Licences can be purchased here:
https://creative.adobe.com/plans

Some may already have skills and proficiency in the Adobe programs Photoshop, Illustrator and InDesign and some will be starting at the beginning. As such, you are required to review the week 2 – week 4 lists of tutorials in Photoshop, Illustrator and InDesign and choose which tutorials will most benefit your learning and suite of skills.

As part of the weekly online tutorial schedule and project submission requirements you are required to complete a minimum of 3 adobe tutorials under each heading and upload images, illustrations, layouts, jpegs, screenshots, pdfs, and or code to your tumblr blog. *See each weeks list for headings. Whether you choose to recreate the tutorials or use the skills/techniques learnt to contribute to your project 1 requirements is optional. However if linked tutorial examples are completed and posted to your tumblr blog, you must alter them in some way to demonstrate your learning and mastery of the skills learnt.

Week 2
Photoshop Tutorials
http://tv.adobe.com/show/learn-photoshop-cc/

You are required to complete a minimum of 3 tutorials from each of the following Headings:

- BASICS
- CROPPING TRANSFORMING
- SELECTING
- LAYERS
- IMAGE ADJUSTMENTS
- FILTERS
- ADVANCED
- AUTOMATION

Upload images, illustrations, layouts, jpegs, screenshots, pdfs, etc. to your tumblr blog. – REMEMBER: make sure you alter the content in some way.

BASICS
- Photoshop workspace
- Organising your Photoshop interface
- Cropping
- Pixel images and sizes
- Understanding resolution
- Undo and History panel
- Grid and guides
- Screen modes

CROPPING AND TRANSFORMING
- Resizing an image
- Ratios, fixed sizes and resolutions
- Understanding Canvas size

SELECTING
- Basic techniques
- Essential selections
- Select part of an image
- Building and editing a mask

LAYERS
- Layers overview
- Basic layers
- Working with layers
- Aligning
- Layer groups
- Layers and backgrounds
- Blending modes
- Layer styles
- Drop shadow in layers

IMAGE ADJUSTMENTS
- How to read the histogram panel
- Changing colour and saturation
- Black and White
- Levels
- Lighten and darken areas of an image
- Masking
- Masking out a person
- Remove an object
- Changing the colour of an object

FILTERS
- Use Filters
- Smart Filter
- Controlling filters opacity
- Sharpening images
- Printing dialog
- Saving images for the web
- Layout
ADVANCED
- Colour setting
- RGB vs CMYK
- Using a gradient fill to make a colour wash
- Blur a background
- Combine two images together with masking
- Vanishing point

AUTOMATION
- Using actions
- Recording actions
- Running a batch

Week 3
Illustrator Tutorials
https://helpx.adobe.com/illustrator/tutorials.html
You are required to complete a minimum of 3 tutorials from each of the following headings:
  - BASICS
  - SHAPES
  - PATHS
  - COLOUR
  - PATTERNS TYPE
  - BRUSHES
  - ADVANCED
  - OUTPUT

Upload images, illustrations, layouts, jpegs, screenshots, pdfs, etc. to your tumblr blog. – REMEMBER: make sure you alter the content in some way.

BASICS
- Illustrator Overview
- Set up a new document
- Tools
- Working with artboards
- Layers
- Selecting and stacking order
- Transforming
- Rotating and reflecting
- Bipmap vs vector
- Image trace

SHAPES
- Shape tools
- Basic shapes
- Use shape tools
- Combining objects
Week 4

InDesign Tutorials

https://helpx.adobe.com/indesign/tutorials.html

You are required to complete a minimum of 3 tutorials from each of the following headings:

- **BASICS**
  - InDesign Overview
  - Tools overview
  - Create a new document
  - Add pages
  - Managing pages and spreads
  - Create a pdf for print

- **IMAGES AND FRAMES**
  - Add text and art in frames
  - Place an image
  - Fitting frames
  - Selecting objects
  - Linking objects

- **TYPE**
  - Placing text
  - Selecting and editing text
  - Format text with character styles
  - Format text with paragraph styles
  - Wrap text around an object
  - Bullets and numbering
  - Using the eye dropper tool
  - Working with styles

- **COLOUR & EFFECTS**
  - Apply colour to an object
  - Create and sync colour
  - Creating gradients
  - Colour groups
  - Colourising images
  - Adjusting transparency
  - Transparency effects
  - Drop shadows
  - Special effects

Upload images, illustrations, layouts, jpegs, screenshots, pdfs, etc. to your tumblr blog. – REMEMBER: make sure you alter the content in some way.

**BASICS**

- InDesign Overview
- Tools overview
- Create a new document
- Add pages
- Managing pages and spreads
- Create a pdf for print

**IMAGES AND FRAMES**

- Add text and art in frames
- Place an image
- Fitting frames
- Selecting objects
- Linking objects

**TYPE**

- Placing text
- Selecting and editing text
- Format text with character styles
- Format text with paragraph styles
- Wrap text around an object
- Bullets and numbering
- Using the eye dropper tool
- Working with styles

**COLOUR & EFFECTS**

- Apply colour to an object
- Create and sync colour
- Creating gradients
- Colour groups
- Colourising images
- Adjusting transparency
- Transparency effects
- Drop shadows
- Special effects

**TABLES**

- How to make a table
- Table and cell options
- Rows and columns
- Splitting and merging
- Table appearance

**INTERACTIVITY**

- Hyperlinks
- Interactive pdf

**OUTPUT**

- Live preflight
- Package files

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Week 5

Ensure you have completed all required Stage 1: Communicating Tutorials in Photoshop, Illustrator and InDesign and uploaded images, illustrations, layouts, jpegs, screenshots, pdfs, and or code to your tumblr blog.

**Stage 2: Visualisation Processing**

Processing is a programming language, development environment, and online community. Initially created to serve as a software sketchbook and to teach computer programming fundamentals within a visual context, Processing evolved into a development tool for professionals. Download processing here:

https://processing.org/download/

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Week 6

Complete this 1 hour online lecture / tutorial for an introduction into the world of processing from http://hello.processing.org/editor/

Produced by Daniel Shiffman

http://shiffman.net/bio

The next set of tutorials is an online series of vimeo tutorials produced by Matthew Epler

http://mepler.com. Each of these tutorials must be completed in succession and evidence of code and screenshots of work in progress must be posted to your tumblr blog each week. These tutorials will take us from Week 6 to Week 13. **NOTE:** It is imperative that you keep up with the schedule to ensure you have the necessary skills and time to complete the Project 2 and Project 3 requirements.
INTRODUCTION

- Intro to Processing for Data Viz - 1 - Setup, Draw, Functions
- Intro to Processing for Data Viz - 2 - Setup, Draw
- Intro to Processing for Data Viz - 3 - Variables
- Intro to Processing for Data Viz - 4 - Scope
- Intro to Processing for Data Viz - 5 - Arrays
- Intro to Processing for Data Viz - 6 - Loops
- Intro to Processing for Data Viz - 7 - Drawing Shapes and Colors
- Intro to Processing for Data Viz - 8 - Drawing Numbers (Bar Graph)
- Intro to Processing for Data Viz - 9 - Circles and Functions
- Intro to Processing for Data Viz - 10 - Line Graphs, pt 1
- Intro to Processing for Data Viz - 11 - Line Graphs, pt 2
- Intro to Processing for Data Viz - 12 - Line Graphs, pt 3
- Intro to Processing for Data Viz - 15 - Putting it all together, pt. 2
- Intro to Processing for Data Viz - 16 - Putting it all together, pt. 3
- Intro to Processing for Data Viz - 17 - Putting it all together, pt. 4
- Intro to Processing for Data Viz - 18 - Putting it all together, pt. 5
- Intro to Processing for Data Viz - 19 - Putting it all together, pt. 6
- Intro to Processing for Data Viz - 20 - Putting it all together, pt. 7
- Intro to Processing for Data Viz - 21 - Putting it all together, pt. 8

Week 7

INTERMEDIATE

- Interim. Processing for Data Viz - 1 - Dynamic Line Graph, pt 1
- Interim. Processing for Data Viz - 2 - Dynamic Line Graph, pt 2
- Interim. Processing for Data Viz - 3 - Dynamic Line Graph, pt 3
- Interim. Processing for Data Viz - 4 - Dynamic Line Graph, pt 4
- Interim. Processing for Data Viz - 5 - Dynamic Line Graph, pt 5
- Interim. Processing for Data Viz - 6 - Dynamic Line Graph, pt 6

Week 8

- Interim. Processing for Data Viz - 7 - Polar Coordinates, pt 1
- Interim. Processing for Data Viz - 8 - Polar Coordinates, pt 2
- Interim. Processing for Data Viz - 9 - Polar Coordinates, pt 3
- Interim. Processing for Data Viz - 10 - Polar Coordinates, pt 4
- Interim. Processing for Data Viz - 11 - Polar Coordinates, pt 5
- Interim. Processing for Data Viz - 12 - Polar Coordinates, pt 6
- Interim. Processing for Data Viz - 13 - Polar Coordinates, pt 7
- Interim. Processing for Data Viz - 14 - Putting it all together, pt. 1

Week 9

Ensure you have completed any remaining Stage 2: Visualisation Tutorials and upload images, illustrations, layouts, jpegs, screenshots, pdfs, and or code to your tumblr blog.

Stage 3 Contextualisation

Week 10

ADVANCED

- Adv. Processing for Data Viz - 1 - APIs, pt. 1
- Adv. Processing for Data Viz - 2 - APIs, pt. 2
- Adv. Processing for Data Viz - 3 - APIs, pt. 3
- Adv. Processing for Data Viz - 4 - APIs, pt. 4 (LastFM + Networks)
- Adv. Processing for Data Viz - 5 - APIs, pt. 5 (LastFM + Networks)
- Adv. Processing for Data Viz - 6 - APIs, pt. 6 (LastFM + Networks)
- Adv. Processing for Data Viz - 7 - APIs, pt. 7 (LastFM & Networks)
- Adv. Processing for Data Viz - 8 - APIs, pt. 8 (LastFM + Networks)

Week 11

- Adv. Processing for Data Viz - 12 - Maps, pt. 4 (Unfolding + TileMill)

Week 12-13

Ensure you have completed any remaining Stage 3: Contextualisation Tutorials and upload images, illustrations, layouts, jpegs, screenshots, pdfs, and or code to your tumblr blog.
8. Assessment

<table>
<thead>
<tr>
<th>Assessment task</th>
<th>Weight</th>
<th>Learning outcomes assessed</th>
<th>Graduate attributes assessed</th>
<th>Due date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Communicating Data</td>
<td>25%</td>
<td>1,2,3,4</td>
<td>B, D, F, O</td>
<td>01/04/15</td>
</tr>
<tr>
<td>2. Visualising Data</td>
<td>35%</td>
<td>1,2,3,4</td>
<td>B, D, F, O</td>
<td>06/05/15</td>
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<tr>
<td>3. Contextualising Data</td>
<td>35%</td>
<td>1,2,3,4</td>
<td>B, D, F, O</td>
<td>03/06/15</td>
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<td>4. Online Quiz</td>
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<td>1,4</td>
<td>B, D, F, O</td>
<td>10/06/15</td>
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<tr>
<td>5. “Best of Semester” Parity and Moodle Submission</td>
<td>*)</td>
<td>1,2,3,4</td>
<td>B, D, F, O</td>
<td>15/06/15</td>
</tr>
</tbody>
</table>

*) No weight but overall mark will be reduced by 10% if not handed in on time

Assessment 1

Name: Project 1: Communicating Data

Description: Students are required to produce a poster presentation outlining their research into their data set. The submission requirements:

- Brief research / data statement [500 words]
- Benchmarking – research into visual communication relevant to data
- Visual detailing – a design elements series that communicates the data i.e. point / line / shape / form / tone / texture / colour / type / hand drawn element
- Visual compositions – a design principles series that communicates the data i.e unity / balance / contrast / hierarchy / scale / proportion / pattern
- Graphical representation of data set in tabular form
- Graphical representation of data set in chart form
- Is to be produced via hand drawn elements and Adobe software programs Photoshop, Illustrator, InDesign and Acrobat.
- The poster presentation will be held as an exhibition format where students are required to print and mount their submissions and hold an exhibition within the studio/tutorial space in week 5.
- Student learning / analysis statement
- Pintrest sketchbook – evidence of work in progress.
- Tumblr blog – evidence of Adobe learning
<table>
<thead>
<tr>
<th>Assessment 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name:</strong></td>
<td>Project 2: Visualising Data</td>
</tr>
</tbody>
</table>
| **Description:** | Students are required to produce a digital presentation representing their data set through the use of processing for data visualisation. The submission requirements:  
  - Concept statement  
  - Benchmarking – research into visual communication relevant to visualisation of data  
  - Hand sketches and design development  
  - Interactive Processing animation representing data set in multiple statistical forms. [5 minimum]  
  - Processing code as a zip file.  
  - Interactive pdf file to present to studio class in week 9.  
  - Student learning / analysis statement  
  - Pinterest sketchbook – evidence of work in progress.  
  - Tumblr blog – evidence of Processing learning. |

<table>
<thead>
<tr>
<th>Assessment 3</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Name:</strong></td>
<td>Project 3: Contextualising Data</td>
</tr>
</tbody>
</table>
| **Description:** | Students are required to produce an animation video digital representing their data set in context through the use of processing. The submission requirements:  
  - Concept statement  
  - Benchmarking – research into data visualisation in context to their data.  
  - Hand sketches and design development  
  - Interactive Processing animation representing data set in location content via the use of plug ins  
  - Processing code as a zip file.  
  - Uploaded vimeo file to present to studio class in week 13.  
  - Student learning / analysis statement  
  - Pinterest sketchbook – evidence of work in progress.  
  - Tumblr blog – evidence of Processing learning. |

<table>
<thead>
<tr>
<th>Assessment 4</th>
<th></th>
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</thead>
<tbody>
<tr>
<td><strong>Name:</strong></td>
<td>Lecture Online Quiz</td>
</tr>
<tr>
<td><strong>Description:</strong></td>
<td>8 questions will be developed from each weekly lecture series i.e 96 questions in total – students will have until week 14 10/06/15 to complete the quiz via Moodle.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Assessment 5</th>
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</thead>
<tbody>
<tr>
<td><strong>Name:</strong></td>
<td>Parity / Moodle submission</td>
</tr>
</tbody>
</table>
| **Description:** | **For Moodle Submission:** Please refer to 17. Parity Session for information about what to hand in and 4. Course Website for how to upload.  
  **For Parity Submission:** Please refer to 17. Parity Session for information on what to present and to 5. Lecture when to present in Week 15. |
## 9. Assessment Criteria and Standards

**Project 1: Final Submission Assessment Marking Sheet**

**CODE1161 Modelling and Visualisation**

**Project 1: Communicating Data**

**STUDENT NAME:**

**STUDENT #:**

<table>
<thead>
<tr>
<th>#</th>
<th>Assessment Criteria:</th>
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<th>VG</th>
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<th>/ 100</th>
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<tbody>
<tr>
<td>1</td>
<td>Concise and thorough research statement</td>
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<td>2</td>
<td>Appropriate and substantiated visual benchmarking</td>
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<td>3</td>
<td>Coherence and quality of visual detailing</td>
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<td>4</td>
<td>Coherence and quality of visual compositions</td>
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<tr>
<td>5</td>
<td>Adaptation of effective methods for graphic communication of data</td>
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<tr>
<td>6</td>
<td>Sophisticated and independent adaption of programs</td>
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<td>7</td>
<td>Quality and effectiveness of visual presentation</td>
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<tr>
<td>8</td>
<td>Relevance and effectiveness of verbal presentation</td>
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<tr>
<td>9</td>
<td>Evaluates improvement of work using course concepts</td>
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**OVERALL MARK out of 100**

**FEEDBACK:**
## Project 1: Assessment Criteria

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<thead>
<tr>
<th>Un satisfactory</th>
<th>Unsatisfactory</th>
<th>Fail</th>
<th>0-49</th>
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</thead>
<tbody>
<tr>
<td>Research statement has no coherence, misses the point.</td>
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<tr>
<td>Poor quality and Inappropriate selection of visual materials</td>
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<tr>
<td>No coherence and poor quality of visual detailing</td>
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<tr>
<td>No coherence and poor quality of visual compositions</td>
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<tr>
<td>Inappropriate methods of graphic communication of data</td>
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<tr>
<td>Unsophisticated use of programs</td>
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<tr>
<td>Poor quality and inappropriate visual presentation</td>
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<tr>
<td>Irrelevant and or inappropriate verbal presentation</td>
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<tr>
<td>Unable to evaluate work using course concepts</td>
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<table>
<thead>
<tr>
<th>Satisfactory</th>
<th>Satisfactory</th>
<th>Pass</th>
<th>50-64</th>
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</thead>
<tbody>
<tr>
<td>Research statement lists points without making connections.</td>
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<tr>
<td>Low quality and ineffective selection of visual materials</td>
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<tr>
<td>Lacks coherence and Quality of visual detailing</td>
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<tr>
<td>Lacks coherence and quality of visual compositions</td>
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<tr>
<td>Ineffective methods of graphic communication of data</td>
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<tr>
<td>Minimal adaption of required programs to sophisticated level.</td>
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<tr>
<td>Low quality and minimally effective visual presentation.</td>
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<tr>
<td>Low quality and minimally verbal presentation.</td>
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<tr>
<td>Minimal evaluation of work using course concepts.</td>
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<table>
<thead>
<tr>
<th>Good</th>
<th>Good</th>
<th>Credit</th>
<th>65-74</th>
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</thead>
<tbody>
<tr>
<td>Research statement makes connections between points but does not create an overall scope or argument of the nature data set.</td>
<td></td>
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<tr>
<td>Somewhat appropriate and substantiated visual benchmarking</td>
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<tr>
<td>Somewhat coherent and quality of visual detailing</td>
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<tr>
<td>Somewhat coherence and quality of visual compositions</td>
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<td>Somewhat effective methods for graphic communication of data</td>
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<td>Somewhat sophisticated and independent adaption of programs</td>
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<tr>
<td>Good quality and somewhat effective visual presentation</td>
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<td>Somewhat relevant and or partially effective verbal presentation</td>
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<td>Good evaluation of improvement to work using course concepts</td>
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<table>
<thead>
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<th>Very Good</th>
<th>Very Good</th>
<th>Distinction</th>
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<tbody>
<tr>
<td>Synthesises points into concise and thorough research statement</td>
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<tr>
<td>Appropriate and substantiated visual benchmarking</td>
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<tr>
<td>Coherent and high quality visual detailing</td>
<td></td>
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<tr>
<td>Coherent and high quality visual compositions</td>
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<td>Adaptation of effective methods for graphic communication of data</td>
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<td>Sophisticated and independent adaption of programs</td>
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<tr>
<td>Quality and effective visual presentation</td>
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<tr>
<td>Relevant and effective verbal presentation</td>
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<tr>
<td>Evaluates improvement of work using course concepts</td>
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<table>
<thead>
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<th>Outstanding</th>
<th>Outstanding</th>
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<tr>
<td>Highly coherent. Synthesises points into concise and thorough research statement. Beyond expectation.</td>
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<td>Highly appropriate and substantiated visual benchmarking</td>
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<td>Highly coherent and highest standard of visual detailing</td>
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<tr>
<td>Highly coherent and highest standard of visual compositions</td>
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<td>Highly effective methods for graphic communication of data</td>
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<td>Highest quality and highly effective visual presentation</td>
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<td>Highly relevance and effective verbal presentation</td>
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<tr>
<td>Rigorously evaluates improvement of work using course concepts</td>
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</tbody>
</table>
# Project 2: Final Submission Assessment Marking Sheet

**CODE1161 Modelling and Visualisation**

**Assignment 2: Communicating Data**

**STUDENT NAME:**

**STUDENT #:**

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<thead>
<tr>
<th>#</th>
<th>Assessment Criteria:</th>
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<th>/ 100</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Concise and thorough concept statement</td>
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<td>Appropriate and substantiated data visualisation benchmarking</td>
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<td>3</td>
<td>Coherence and quality of graphic representations for data visualisation</td>
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<td>4</td>
<td>Sophisticated and independent adaption of programs for data visualisation.</td>
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<td>5</td>
<td>Quality and effectiveness of visual presentation</td>
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**OVERALL MARK out of 100**

**FEEDBACK:**
<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsatisfactory</td>
<td>• Concept statement has no coherence, misses the point.</td>
</tr>
<tr>
<td></td>
<td>• Poor quality and inappropriate selection of data visualisation benchmarking</td>
</tr>
<tr>
<td></td>
<td>• No coherence of graphic representations for data visualisation</td>
</tr>
<tr>
<td></td>
<td>• Unsophisticated use of programs</td>
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<td>• Poor quality and inappropriate visual presentation</td>
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<tr>
<td></td>
<td>• Irrelevant and or inappropriate verbal presentation</td>
</tr>
<tr>
<td></td>
<td>• Unable to evaluate work using course concepts</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>• Concept statement lists points without making connections.</td>
</tr>
<tr>
<td></td>
<td>• Low quality and ineffective substantiated data visualisation benchmarking</td>
</tr>
<tr>
<td></td>
<td>• Lacks coherence and quality of graphic representations for data visualisation</td>
</tr>
<tr>
<td></td>
<td>• Minimal adaption of required programs to sophisticated level.</td>
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<tr>
<td></td>
<td>• Low quality and minimally effective visual presentation.</td>
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<tr>
<td></td>
<td>• Low quality and minimally verbal presentation.</td>
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<tr>
<td></td>
<td>• Minimal evaluation of work using course concepts</td>
</tr>
<tr>
<td>Good</td>
<td>• Concept statement makes connections between points but does not create an</td>
</tr>
<tr>
<td></td>
<td>overall scope or argument of the nature data set.</td>
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<tr>
<td></td>
<td>• Somewhat appropriate and substantiated data visualisation benchmarking</td>
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<td></td>
<td>• Somewhat coherent and quality of graphic representations for data visualisation</td>
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<tr>
<td></td>
<td>• Good evaluation of improvement to work using course concepts.</td>
</tr>
<tr>
<td>Very Good</td>
<td>• Concise and thorough concept statement</td>
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<tr>
<td></td>
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<td></td>
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<td>• Relevance and effectiveness of verbal presentation</td>
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<tr>
<td></td>
<td>• Evaluates improvement of work using course concepts</td>
</tr>
<tr>
<td>Outstanding</td>
<td>• Highly coherent. Synthesises points into concise and thorough concept statement. Beyond expectation.</td>
</tr>
<tr>
<td></td>
<td>• Highly appropriate and substantiated visual benchmarking for data visualisation.</td>
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<td>• Highly coherent and highest standard of graphic representations for data visualisation.</td>
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</table>
## Project 3: Final Submission Assessment Marking Sheet

### CODE1161 Modelling and Visualisation

### Assignment 3: Contextualising Data

<table>
<thead>
<tr>
<th>#</th>
<th>Assessment Criteria:</th>
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<th>/ 100</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Concise and thorough concept statement</td>
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<tr>
<td>2</td>
<td>Appropriate and substantiated data visualisation benchmarking for contextualising</td>
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<tr>
<td>3</td>
<td>Coherence and quality of graphic representations for data visualisation in context</td>
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<tr>
<td>4</td>
<td>Sophisticated and independent adaption of programs for data visualisation.</td>
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<td>5</td>
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</tbody>
</table>

**OVERALL MARK** out of 100

**FEEDBACK:**
## Project 3: Assessment Criteria

### Unsatisfactory
- **Fail**
  - 0-49
- Concept statement has no coherence, misses the point.
- Poor quality and inappropriate selection of data visualisation benchmarking for contextualising
- No coherence of graphic representations for data visualisation in context
- Unsophisticated use of programs
- Poor quality and inappropriate visual presentation
- Irrelevant and or inappropriate verbal presentation
- Unable to evaluate work using course concepts

### Satisfactory
- **Pass**
  - 50-64
- Concept statement lists points without making connections.
- Low quality and ineffective substantiated data visualisation benchmarking for contextualising
- Lacks coherence and quality of graphic representations for data visualisation in context
- Minimal adaption of required programs to sophisticated level.
- Low quality and minimally effective visual presentation.
- Low quality and minimally verbal presentation.
- Minimal evaluation of work using course concepts.

### Good
- **Credit**
  - 65-74
- Concept statement makes connections between points but does not create an overall scope or argument of the nature data set.
- Somewhat appropriate and substantiated data visualisation benchmarking for contextualising
- Somewhat coherent and quality of graphic representations for data visualisation in context
- Somewhat sophisticated and independent adaption of programs for data visualisation.
- Good quality and somewhat effective visual presentation
- Somewhat relevant and or partially effective verbal presentation
- Good evaluation of improvement to work using course concepts

### Very Good
- **Distinction**
  - 75-84
- Concise and thorough concept statement
- Appropriate and substantiated data visualisation benchmarking for contextualising
- Coherent and quality of graphic representations for data visualisation in context
- Sophisticated and independent adaption of programs for data visualisation.
- Quality and effectiveness of visual presentation
- Relevance and effectiveness of verbal presentation
- Evaluates improvement of work using course concepts

### Outstanding
- **High Distinction**
  - 85-100
- Highly coherent. Synthesises points into concise and thorough concept statement. Beyond expectation.
- Highly appropriate and substantiated visual benchmarking for data visualisation contextualising
- Highly coherent and highest standard of graphic representations for data visualisation in context
- Highly sophisticated and independent adaption of programs
- Highest quality and highly effective visual presentation
- Highly relevance and effective verbal presentation
- Rigorously evaluates improvement of work using course concepts
## Parity assessment / Moodle submission

**ARCH1101 / CODE1110 / CODE1150 / CODE1161** (coordinator please mark your course)

### Assignment 4: Parity assessment / Moodle submission

| STUDENT NAME: | | | | | | |
| STUDENT #: | | | | | | |

### Assessment Criteria:

<table>
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<th>Assessment Criteria:</th>
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<tr>
<td>1</td>
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<td>Intellectual engagement with topics communicated through semester</td>
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<td>3</td>
<td>Can demonstrate knowledge through technical skills</td>
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<td>4</td>
<td>Sophisticated and independent adaption of lecture content</td>
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### OVERALL MARK out of 100

**FEEDBACK:**
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<tr>
<th>Category</th>
<th>Grade</th>
<th>Criteria</th>
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<td>Fail 0-49</td>
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</table>
10. Assessment Feedback

Students will gain feedback about their process in tutorials via 3 basic levels:

Firstly, the goals of the tutorials are clearly defined in the course outline and discussed at the beginning of each project and the learning steps within the project in the weekly face-to-face tutorials. Here students will understand how their performance relates to the broad goals of the course.

Secondly, students will obtain feedback in each tutorial class (during the three tutorial hours) on their development of the online tutorials. Tutors will help to discuss and analyse how successful they have been at addressing the task and its criteria of each project and the learning steps within the project.

Thirdly, students will obtain feedback in each tutorial (during the three tutorial hours) in how their response to the project and the learning steps within the project could be improved. Tutors will help students in one-to-one sessions to discuss and analyse how improvements could be made and which resources students could consult for an improvement or further development.

Students will gain feedback on their Assessment via:

- Verbal feedback, which will be given at the time of presentation of each assessment.
- An assessment rubric, based on the assessment criteria and statements outlined above will be utilised by your lecturer and tutors as a tick box system.
- A mark will be assigned to each statement of the assessment and brief comments will accompany the assessment grade.
- Assessment grades will be provided via the Moodle course website within 2 weeks of an assessment.

11. Resources

11.1 Readings, textbooks and UNSW Library resources

Essential readings


Recommended readings


Ambrose G., Harris P., (2005) Basics Design 03 Typography, Bloomsbury, UK


Ambrose G., Harris P., (2012) Basics Design 06 Print and Finish, Bloomsbury, UK


Online resources

City of Sydney Data Source
UNSW Access to Lynda.com
https://www.it.unsw.edu.au/catalogue/lynda.html

Design Blogs & Examples
http://www.markboulton.co.uk
http://www.core77.com/blog/core77_questionnaire/sam_jacob_on_his_new_design_studio_the_demise_of_fat_architecture_and_the_long-term_benefits_of_messing_around_27943.asp
Best tumblr blogs -
http://www.creativeblog.com/inspiration/best-tumblr-blogs-for-designers-1233429
http://www.coolhunting.com/#read

Principles and Elements
http://www.aiga.org/graphic-design-theory/
http://justcreative.com/2008/06/13/how-to-design-learn-the-basics/
http://www.fuelyourcreativity.com/the-lost-principles-of-design/

Colour
http://www.tutorial9.net/articles/design/simple-practical-color-theory/
Kandinsky Colour - http://vimeo.com/97045448
http://www.aiga.org/off-the-chart/
http://sixrevisions.com/web_design/a-look-into-color-theory-in-web-design/
http://www.smashingmagazine.com/2010/02/02/color-theory-for-designers-part-2-understanding-concepts-and-terminology/
http://www.smashingmagazine.com/2010/02/08/color-theory-for-designer-part-3-creating-your-own-color-palettes/

Typography
http://www.brainpickings.org/2011/08/01/10-essential-books-on-typography/
http://practicallytypography.com/index.html#toc
just my type  http://vimeo.com/28108942
http://www.pixel77.com/principles-of-typography/
http://www.urbanfonts.com/blog/2013/02/serif-vs-sans-the-final-battle/

Visualisation Blogs & Examples
Processing
https://processing.org/examples/
https://processing.org/exhibition/
https://processing.org/tutorials/
http://www.informationisbeautiful.net/books
http://isabelmeirelles.com
http://flowingdata.com
http://infosthetics.com
Visualise PI: http://vimeo.com/89145922
Data Visualisation in Motion:
http://vimeo.com/30144927
Data Visualisations: http://vimeo.com/15229454
Make Change data Visualisations:
http://vimeo.com/18725817
Data Visualisation examples:
http://vimeo.com/45579023
Weather data Visualisation:
http://vimeo.com/42941344
Visual Data Mining: http://vimeo.com/10483313
500 Milestone: http://vimeo.com/42042473
Matthew Epler:
http://mepler.com/Color-of-Language
http://mepler.com/Grand-Old-Party
http://mepler.com/Big-Bats
Clouds: http://www.cloudsdocumentary.com
12. Class Requirements

Class material
Most of the work that students produce in this course is digitally based; However Project 1 is required to be printed and mounted on 5mm foamcore. This can be arranged through UNSW p3 printing, which is located in the Matthews Building on upper campus:
Alternatively, students can
- Print your a2 posters on the large format oce printers in the red centre level 1 print room. See BECU for assistance, and
- Purchase 5mm foamcore, spray adhesive, blade, metal ruler from: https://www.eckersleys.com.au

Studio tutorial requirements
It is expected that students bring their laptop with the below mentioned software packages to each class. Not bringing a laptop means we cannot look, comment and help students with their work, as we do not run tutorials in a computer lab. Using your friend’s laptop means that he or she cannot work in the time given in class and thus is not an option either.

Software and hardware requirements

Software:
Adobe InDesign, Illustrator, Photoshop, Acrobat.
Student Adobe Licences can be purchased here:
https://creative.adobe.com/plans

Processing
Download processing here:
https://processing.org/download/

Hardware:
Students are to provide their own laptop uploaded with adobe suite and processing.org.
See BECU [Built Environment Computing Unit] for more information.
https://www.be.unsw.edu.au/student-intranet/it-information

13. Expectations

The lectures, class tutorials and weekly online tutorials are an integrated part of this class. Not attending lectures means that students will miss out on integral representation and visualisation techniques and the project examples presented. Consequently students will lack the design knowledge and context heavily relied upon in every class you will complete as part of your degree. Topics and issues discussed in the class are subject to an exam at the end of the semester and missing out on classes will consequently risk students’ ability to pass the exam and consequently the course.

The online tutorials set each week are absolutely essential to learn the required software skills to complete the Assignments. The mastery and continued development of these skills are an expectation as you move through the degree and your design education. It is expected that you complete the tutorials prior to attending the face-to-face tutorials as per the weekly schedule. Tutorials are an environment for students to trouble shoot any issues they have with completing the tutorials. Additionally, tutorials are to be used by students to consult on the development and progress of their projects.

If you experience any difficulties please refer to Special Consideration, Late Work and other policies in the BE Policy Outline at: https://www.be.unsw.edu.au/sites/default/files/currentstudents/LearningTeaching/BE_AcademicPolicyOutline2014.pdf
Also see 19. Built Environment and UNSW Academic Policies for more information.
14. Learning Experience and Teaching Strategies

This course is part of the practice orientated teaching trajectory ‘Constructing’, Path 6: Gaming and Visual Representation’ which forms part of the ‘Beginner Level ‘of the Student Specialisation Journey.

In this course students are introduced to representation and visualisation techniques by combining industry standard software Adobe Suite with state of the art coding software Processing for data communication, visualisation and contextualisation.

The stream’s educational focus is on joining digital design with representation processes to visualise and represent design in the form of data and information using static and dynamic visualisation tools.

The teaching strategy is centred on recent developments in visual representation by accessing not only recent advantages in software but also combines knowledge from architecture, graphic design, film and video editing, web-based technologies, information design and user interface design. Given the often-representational nature of the stream, course assessments focus on advanced presentation methods that enhance the communication of projects as well as overlap with simulation and interaction tasks.

The teaching in the course is conducted via a lecture series (one hour per week); the lecture series has 80% attendance requirement and will have a computer-generated test at the end of the semester. Passing the test with a minimum of 80% right answers is compulsory to pass the course.

The teaching of these skills is supported through the Moodle learning environment through course information, communication, weekly topic links, assessment briefs, rubrics and submission links, tumblr blogs and Course Online Components for detailed information.

Learning in this course is achieved through the combination of active and experiential learning methods. Specifically students are required to actively take on the responsibility of their learning. Learn by doing by completing required tutorials before tutorial sessions and post to their tutorial blog. Additionally it is expected that students contribute to discussions and evaluate each other’s work to develop their critical analysis and design discourse skills. Students will also be required to submit, a self-learning / analysis statement as part of each assessment to reflect on their process and learning as it happens.

The Software Journey consists of three stages: Stage 1: Communicating Tutorials [Photoshop / Illustrator / InDesign / Acrobat], Stage 2: Visualising Tutorials Processing Tutorials – Introduction to Intermediate Data Visualisation, Stage 3: Contextualising Tutorials Processing Tutorials – Advance Data Visualisation. Each stage builds on the last and is assessable via tutorial links posted to the course Moodle weekly. Students are required to post examples; images, screenshots, pdfs, links, code and descriptions based on skills learnt in the tutorials each week. This will form the student tutorial tumblr blog and is an assessable requirement of each project brief.

The project(s) in this course are based on a set of data generated by the students via the City of Sydney data source website http://profile.id.com.au/sydney/data-export.

The course consists of 3 major assessments: 1. Communicating Data 25% / 2. Visualising Data 35% / 3. Contextualising Data 35%. The assessments require the students to 1. communicate their data set and research area visually via a poster exhibition project. 2. visualise and code the data into interactive graphic representations for data visualisation via a digital presentation. 3. Contextualise the data via the use of mapping and location based data visualisation through a Vimeo submission.

15. Course Aims

The aims of this course are to

1. provide the framework for design concept and presentation techniques within a design context in the field of Computational Design.
2. give an introduction to representation and visualisation techniques with a direct emphasis of the application of real-world data in the field of Computational Design.
16. Learning Outcomes

At the successful conclusion of this course the student will be able to:

1: **analyse** visual communication and data visualisation techniques (historic and present) utilised in the design discipline.

2: **create** visual communications and data visualisations to represent a set of data within a design context.

3: **demonstrate** the use of software packages Adobe and Processing interchangeably in a design context.

4: **evaluate** and critique work completed by peers, for the purposes of developing design sensibility and participation in design discourse.

17. Parity Session

As part of creating a community and culture of showcasing work, students will be required to submit a selection of their best images (plans, renderings, model pictures, screenshots, etc.) from their final presentation as well as work in the progress during semester. This will also help in marking and feedback. The online submission is an essential requirement. Failing to do so will give you a (-) 10% of your overall mark. The collection of student works will also be employed for marketing purposes. As you know, we are a very young discipline and we want to share what you have designed and produced during the semester. The submission platform will be within Moodle. The following defines the expectations of what to submit.

**For Moodle Submission:**

- Five indicative images that best represent your work / designs during the semester.
- For landscape image (approx. 2480 x 3508 pixels @ 300 dpi) for portrait image (approx. 3508 x 2480 pixels @ 300 dpi)
- For each of the five images please provide five keywords in order to find images later.
- Upload images as explained in 4. Course Website.
- Deadline is day before parity session 5pm. (Moodle page will close).

**For the Week 15 parity session:**

- Create a poster with the five images you have uploaded onto Moodle. The poster will use the layout (parity layout template that can be downloaded on the Moodle page for each course) and has to be printed on white 3mm core flute.
- Pin up of poster with dates is outlined in Week 15 lecture / tutorial activity.
- The layout has either a portrait or a landscape format and students can use either one or the other or a mix of both to represent the four courses they have done in each semester.
- The size of the template is the same size as the black exhibition boxes UNSW uses for their exhibitions and you showed fix the core flute poster to the black boxes using i.e. adhesive tape.
- Students have each six of these black boxes to use four of them to attach their core flute posters and the remaining two to showcase any models or other physical outcome of the semester.
- Again you have to curate your work and choose the best to re-present your work.
18. Course Graduate Attribute

<table>
<thead>
<tr>
<th>CODE1161 course Graduate attributes</th>
<th>Learning outcome</th>
<th>Activity/Assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Scholars who are capable of independent and collaborative enquiry.</td>
<td>1, 4</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>D. Scholars who are able to apply their knowledge and skills to solving problems.</td>
<td>1, 2, 3, 4</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>F. Scholars capable of effective communication.</td>
<td>1, 2, 3, 4</td>
<td>1, 2, 3, 4</td>
</tr>
<tr>
<td>O. Global Citizens who are capable of applying their discipline in local, national and international contexts.</td>
<td>1, 2, 4</td>
<td>1, 2, 3, 4</td>
</tr>
</tbody>
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All students are required to understand the BE and UNSW academic policies. Make sure that you familiarise yourselves with this document.

This document governs all Faculty of Built Environment (FBE) programs and is available in all FBE course outlines and on Moodle, as well as on the UNSW BE student intranet: http://www.be.unsw.edu.au/student-intranet/academic-policies

It covers:

• Built Environment Student Attendance Requirements
• Units of Credit (UOC) and Student Workload
• Course and Teaching Evaluation and Improvement (CATEI)
• Academic Honesty and Plagiarism
• Late Submissions Penalties
• Special Consideration - Illness & Misadventure
• Extension of Deadlines
• Learning Support Services
• Occupational Health & Safety