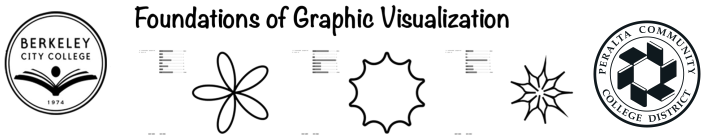
Fundamentals of Graphic Visualization
MMART-140 Fall 2024/2025
Art/Design Computation:
History, Theory, & Practice (Material)



Syllabus

Instructors:
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- **Joshua Dickinson -** jddickinson@peralta.edu
- **Gustavo Alfonso Rincon (PhD) -** grincon@peralta.edu
- **Norman Alfie -** nalfe@peralta.edu

Class (Online): Tu/Th 11:25 am - 12:25 pm
Tuesdays will be the main lecture and homework assignments
Thursdays will be a lab with open discussion
Important Dates: Midterm Reviews & Final Reviews
Zoom Link: …

- **Important:** Please reach out to us if you're lost or confused at any point throughout the semester- **we're always happy to check in and help.**
- **Note:** This is an asynchronous course so most or all lectures/labs will be recorded.

Description: Analysis and development of graphic visualization: Basic principles, attributes, and elements of design, including the relationships among production methods, materials, and data sets.

Objects: Successful completion of this course will enable students to:
- Produce original graphic designs that contain design elements and principles by employing both traditional manual skills and contemporary computer skills.
- Analyze the elements and goals of simple communication problems through conceptual thinking and idea development processes to create graphic designs from conceptualization to the finished layout.
- Demonstrate knowledge of current graphic design practices and graphic design software. Understand aesthetic elements of graphic design theory for the completion of a conceptual design project.
- Understand aesthetic elements of graphic design theory for the completion of a conceptual design project.
- Compose a visualization that applies aesthetic principles to materials or data sets.

Methodology: This course will provide text, links, online resources, and tutorials to enhance student skills. Smaller projects within the course will grow to larger more substantial manifestations for course work.

Assignments
- **Weekly Homework Assignments**
- **Weekly Readings & Media Links**

Class Participation:
- **Class Discussion**
- **Sharing Assignments**

Class Online Discussion
- **Discord Link:** https://discord.gg/ARTUGknwEc.
  Please join our department server and find this course available under the "Virtual Reality" group. Use this for all class discussion for questions, feedback, and interaction. It will be one of the many digital spaces that we occupy and build during this course so **please keep it active, fun, and respectful.**

- **Canvas Link:** https://peralta.instructure.com/courses/70268

Student Learning Outcomes

– Students will utilize computational skills to build New Media projects that demonstrate Proof Concept.
-- Provide original designs that contain traditional and contemporary skills.
-- Demonstrate personal identity with project visualizations.
-- Present and collaborate with students in the process of Project Design.

Methodology: This course will provide text, links, online resources, and tutorials to enhance student skills. Smaller projects within the course will grow to larger more substantial manifestations and a final project.

Required Reading, Software, and Materials: We will be reading the book "Functional Art" by Alberto Cairo, using the Class web site, handouts, and tutorials: @www.justinhoffman.net. You will be expected to find solutions to the resource of Adobe Photoshop CC, which are available free of charge during MMART lab sessions. We will provide all required reading (https://scholar.google.com/), videos, and other lecture material free of charge. We will focus on free and easily accessible software throughout the course.

Field Trips: During this course we will be going into the community to meet other individuals that are leaders in graphic design and visualization. It is not mandatory to join us for the field trips, although strongly encouraged. If you have a challenge with attending the field trip, please notify the instructor in advance of the course for alternative course materials for that day's instruction.

Evaluation Criteria: Grades will be calculated based on a point scale in regards to acumen of projects, comprehension of readings, homework/lab sessions, and participation.

- **80% Homework/Projects**
- **20% Final Project & FinalPresentation**

Grading Scale A=90-100%, B=80-89%, C=70-79%, D=60-69%, F=0-59%

- All course Homework and Projects are averaged together equally to represent the 80% total for Homework and Projects.

Class Policies: Students enrolled in this course are expected to be engaged in class and prepare regarding the course material. Dialogue and participation regarding course material is encouraged, and it is expected that attendees are considerate and invested in their peers' ideas and presented activities. 3 absences or 4 late assignments and you may be dropped from the course.

Course Structure and Policies: While extremely rare, the instructor may modify course layout based on discretion and progress of participants. If there are questions regarding course content, policy, or dialogue please inform the instructor.

Academic Dishonesty: Cheating & Plagiarism: Berkeley City College demands intellectual honesty. Proven plagiarism or any form of dishonesty associated with the academic process can result in the offender failing the course in which the offense was committed or expulsion from school. See the Berkeley City College Student Code of Conduct. **Note:** in this course **we encourage "remixing" and using found content**, but PLEASE always **cite your source** or ask your instructor if you are unsure what is permissible.

ADA Accommodations Policy: It is the policy of Berkeley City College to provide appropriate accommodations to any student with a documented disability. If you have a need for accommodation in this course, please make an appointment with our Accommodative Services at 510-981-2929. The email for Maricela Becerra is mbecerra@peralta.edu and Lynn Massey is cmassey@peralta.edu

LGBTQ: There are additional LGBTQ resources available on campus, please contact the student rep at rrerin@gmail.com. There is also a single bathroom on the first floor (past financial aid) that is now for transgender use, but is available to all.

Veterans: There are additional resources for Veterans on campus. If possible, please inform me in advance of any information that may be helpful pertaining to class time, class activities, etc. Jennifer Lenahan is a representative here on campus and her email is bccvets@gmail.com

Student Rights and Responsibilities: Please refer to the Berkeley City College Student Conduct and Judicial Code for information concerning your rights and responsibilities as a Berkeley City College Student.

Outline: Fall / Spring Semester(s):

- **Summary:** This class tries to experiment and build communities online. You may be exposed to new platforms of media consumption and communication.

- **Methods of Instruction:** 1. Activity, 2. Lecture, 3. Lab, 4.Observation and Demonstration, 5. Discussion ,6. Critique, 7. Individualized Instruction, 8. Directed Study, 9. Multimedia Content

- **Back Up Your Work**: Failure to upload your assignments is an individual's responsibility; Hardware failure is not an excuse.

Class Schedule: (Important: Weekly assigned readings are linked on Canvas.)

Week 1 - Design for Robots:

- **Lecture: (Tues.)** by Professors J. Hoffman & J. Dickinson
    - **Topics:**
        - Watch, Analyze, Create, and Design

- **Lab Discussion (Thurs.) Class Check in**
    - **Homework:** Design for Robots

Week 2 - Beginners Mind 1 & 2:

- **Lecture: (Tues.) Class Topic Lecture** by Professors J. Hoffman & J. Dickinson
    - **Topics:**
        - Devices of Exploration to Analysis - “What is there?”

- **Lab Discussion (Thurs.): Class Check in**
    - **Homework:**
        - Assignment: Beginner’s Mind: Practice in Visual Selection

Week 3 - Beginners Mind 3:

- **Lecture: (Tues.) Class Topic Lecture** by Professors J. Hoffman & J. Dickinson
    - **Topics:**
        - Prosthetic Memory
        - Images - Photographs & Words

- **Lab Discussion (Thurs.): Class Check in**
    - **Homework:**
        - Assignment: Day in the Life

Week 4 - Language of Parameters / Prompts - Part I:

- **Lecture: (Tues.) Class Topic Lecture** by Professors J. Hoffman & J. Dickinson
    - **Topics:**
        - Overview
        - Language of …

- **Lab Discussion (Thurs.): Class Check in**
    - **Homework:**
        - Assignment: Data Discovery in Visual Visual Representation

Week 5 - Kernal, Vapor, Oil:

- **Lecture: (Tues.) Class Topic Lecture** by Professors J. Hoffman & J. Dickinson
    - **Topics:**
        - Thinking Visually - Metaphors, Similies, & Parables
        - Kernal - Tangible Action, Vapor - Intangible, and Oil - Additional Examples

- **Lab Discussion (Thurs.): Class Check in**
    - **Homework:**
        - Assignment: Think Visually, Do Something Tangible, & Create an AI Design

Week 6 - Language of Parameters / Prompts - Part II:

- **Lecture: (Tues.) Class Topic Lecture** by Professor N. Alfie
    - **Topics:**
        - Parameters/Prompts

- **Lab Discussion (Thurs.): Class Check in**
    - **Homework:**
        - Assignment: Data Discovery in Visual Visual Representation - Prt. II

Week 7 - Abstraction & Idiograms I:

- **Lecture/Discussion: (Tues.) - Class Check in**

- **Lab/Lecture (Thurs.): Data Design -** NMA Futures: History (1/6) by Professor G. Rincon
    - **Topics:**
        - NMA: History: Ways of Seeing (John Berger) + Abstraction
    - **Homework:** (Assignment: Write about 1 example (1 page with visual experiments)
        - Assignment: Review all lecture presentation links

Week 8 - Abstraction & Idiograms II:

- **Lecture: (Tues.) Class Topic Lecture**

- **Lab/Lecture (Thurs.): Data Design -** NMA Futures: Present (2/6) by Professor G. Rincon
    - **Topics:**
        - NMA: History to Present: Abstraction, Ideogram to SciViz
        - SciViz: Instrument to PST Art 2024 RealTime to Video Art (Bill Viola)
    - **Homework:** (Assignment: Write about 1 example (1 page with visual experiments)
        - Assignment: Review all lecture presentation links

Week 9 - Collage:

- **Lecture: (Tues.) Class Topic Lecture**

- **Lab/Lecture (Thurs.):** NMA Futures: Future: Complexity to Examples (3/6) by Professor G. Rincon
    - **Topics:**
        - Complexity
        - Analysis Critique
        - Worldbuilding
    - **Homework:** (Assignment: Write about 1 example (1 page with visual experiments)
        - Assignment: Review all lecture presentation links

Weeks 10 - Data Visualization Introduction:

- **Lecture: (Tues.) Class Topic Lecture**

- **Lab/Lecture (Thurs.):** NMA Futures: Case Studies: Eliasson (4/6) by Professor G. Rincon
    - **Topics:**
        - Olafur Eliasson
        - Influences - Architects, Artists, & Art movements
    - **Homework:** (Assignment: Write about 1 example (1 page with visual experiments)
        - Assignment: Review all lecture presentation links

Weeks 11 - Data Visualization Introduction (continued):

- **Lecture: (Tues.) Class Topic Lecture**

- **Lab/Lecture (Thurs.):** NMA Futures: Case Studies: Stockhausen (5/6) by Professor G. Rincon
    - **Topics:**
        - Karlheinz Stockhausen
        - Electronic Music | Computer Music & …
    - **Homework:** (Assignment: Write about 1 example (1 page with visual experiments)
        - Assignment: Review all lecture presentation links

Week 12 - Final Project + Final Portfolio Lab + Feedback:

- **Lecture: (Tues.) Class Check In & Individual Student/Team Q&A**

- **Lab/Lecture (Recorded):** NMA Futures: References: Art + Information (6/6) by Professor G. Rincon
    - **Topics:**
        - Art + Information
        - Computer History
        - Electronic Music
        - Composition & Tech
        - A.I. in Culture
        - History + Philosophy + Science + Theory
        - DigitalFutures
        - Art, AI, Computation, & Quantum - a future???

- **(All) Final Assignments:**
  (**Please choose an option** - Details can be found either on Canvas - online link or the Addendum section - below. **Important:** speak with the instructor to confirm your choice.)

    - **Final Assignment Option A:**

    - **Final Assignment Option B:**
      (Please refer to the online Link and speak with the instructor to confirm.)

Addendum:

Final Assignment Option A:

- **Final Portfolio:**
  Create a Document, Instagram Account, or LinkedIn Account. Catalog the Images that you create for this course and provide a short summary for each of the pieces you create. Upload your Document or screenshots of the account you created.

- **Feedback:**
  For 3 of your course pieces or assignments, share them! Share them with your family, friends, our course discord, or social media. You must receive at least 2 pieces of feedback for each assignment. Create a google document and express the feedback that you have received for your assignments, how the feedback impacted you, and what you have learned from the feedback that helped improve, change, or grow a stronger resolve.

- **Social Media:**
  Create a social media channel on Facebook, YouTube, Instagram, LinkedIn, TikTok, etc. Post some of your work or comments about your thoughts on the subject matter or what inspires you towards your future career.

- **Extra Points** for trying to generate a larger audience to view and share your work. Post a screenshot with the account you have created.

Final Project Assignment Option B:

Part One: Gathering and Analyzing: Click Link

Final Project

- First some inspiration:
  - Rosa Ursina, sive Sol (1612) Click Link
  - One of the first first graphic visualization illustration
  - Based on his observation of sunspots. Click Link
    Designed by Christoph Scheiner
- The final project will have 3 Steps:
  - 1. Research + Data : Gathering Data
  - 2. Knowledge: Analyzing the Data
  - 3. Visualization: Designing an Infographic
    - Examples of Infographic Work Click Here
    - Examples of previous Final Projects Click Here

Step 1 Research + Data : Gathering Data

- **I. Read the 5 Steps to creating a powerful visual** Click Link
  This week we will focus on Steps 4 and 5 from the link
  - Research
  - Data
  - Knowledge
- **II. RESEARCH: How to Research and Create a Narrative with Infographics**
  - Here is a link that discusses the foundational skills necessary for creating a Narrative: Click Link

- **III. DATA: Collect your Information and Organize.**
    - Review the DATA Assignment Page — Click Link
    - Review the Example expected with the Assignment. — Click Link

Step 2 Knowledge: Analyzing the Data

- **IV. KNOWLEDGE: Analyze your data. Write a two paragraph summary about the data that you selected, and the meaning that you feel your data represents.**
    - Review the KNOWLEDGE Assignment -- Includes Homework Example. — Click Link
    - Link to Class Demonstration -- Dog Owner Satisfaction Chart: — Click Link
    - **EXTRA CREDIT** -- Build an Infographic with your resume. — Click Link
        - Take a screen grab or download the infographic that you have created.
        - Then upload

Part Two: Designing Infographic — Click Link

Step 3 Visualization : Designing an Infographic

- **I. What is the best way to visually represent your previous Assignment findings regarding DATA, KNOWLEDGE, & why?**
        - You can narrow your previous findings for your Visual Display
        - Only 5 countries and 5 years are necessary for the visual design (You can still use more if you would like).
        - Read the article to decide what type of chart best fits your data. — Click Here
- **II. Using the Infographic Design Kits or Creating Graphics on your own, Build or Select Graphics that represents your data.**
    - Here is a list of design resources that includes: Software, Tutorials, & Free Design Kits/ Templates — Click Here
- **III. Create a rough sketch of your Infographic Design**
    - Read the Medium Article on Sketching your Design — Click Here
    - Use paper, graph paper, Illustrator/Photoshop/Whatever system you prefer.
    - This sketch should be turned in with your final project.
    - If you go through multiple iterations or the final project diverges from the sketch that is completely fine.
- **IV. Plan the Layout for your Infographic Design with Figma, Sketch, or Photoshop**
    - Read the Article on Planning your Layout — Click Here
- **V. Use typography/text within your infographic.**
    - Add the summary and analysis information from your previous assignment. (This will provide context to what your infographic is about.)
    - Typewolf - For Complimentary Font — Click Here
    - Dafont - Font Library — Click Here
      Note: Some of the fonts may be new to your computer See link for installing new fonts.
    - Tutorials for Installing Fonts — Click Here
- **VI. Be sure to select your fonts & colors carefully!! Ask yourself if they fit your subject.**
    - Hint: Think about Kernel and Vapor parameters that may be relevant to your subject.
    - Search for font styles and colors that fit those parameters.
- **VII. Review Infographic Examples** — Click Here
- **VIII. Review Previous Student Work** — Click Here

STEP 4 UPLOAD YOUR ASSIGNMENT

- **I. Upload a document that describes what type of chart you selected and why that style of chart fits your data.**
- **II. Upload an image of your preliminary sketch**
- **III. Upload an Image of your final infographic**

References: All Readings & AV Media

- **Articles & AV Media:** (Important: Please refer to our online weekly lecture notes to find our AV/Reading weblinks.)
- **Books:**

Anderson, Steve F. *Technologies of Vision: The War Between Data and Images*. MIT Press, 2017.

Berger, John. "Ways of Seeing." (1972).

Bleecker, Julian, et al. *The Manual of Design Fiction*. 2022.

Deleuze, Gilles., and Félix Guattari. "A Thousand Plateaus: Capitalism and schizophrenia." *U of Minnesota P* (1987).

Dunne, Anthony, and Fiona Raby. *Speculative Everything*. MIT Press, 2024.

Gleick, James. *The Information: A History, a Theory, a Flood*. Vintage, 2011.

Kelly, Mary, and Juli Carson. "Mary Kelly's Concentric Pedagogy: Selected Writings." (2024): 1-336.

Mayer-Schönberger, Viktor, and Kenneth Cukier. *Big Data: A Revolution that will Transform How We Live, Work, and Think*. Houghton Mifflin Harcourt, 2013.

Manovich, Lev. *The Language of New Media*. MIT press, 2002.

Mitchell, Melanie. Artificial Intelligence: A Guide for Thinking Humans. Farrar, Straus and Giroux, 2019.

Mitchell, Melanie. Complexity: A Guided Tour. Oxford University Press, 2009.

Strogatz, Steven H. *Sync: How order emerges from chaos in the universe, nature, and daily life*. Hachette Books, 2012.

Shiffman, Daniel. The Nature of Code: Simulating Natural Systems with JavaScript. No Starch Press, 2024.

Wardrip-Fruin, Noah. The New Media Reader. MIT Press, 2003.

Y. N. Harari, Sapiens: A Brief History of Humankind. Harper Collins, 2015.

Youngblood, Gene and Buckminster R. Fuller. "Expanded Cinema." 2020.

- **All Recorded Lecture(s):** (Please refer to our online weekly lectures - recorded links on Canvas.)

CONTENTS

* Note: (# 284 Slides w/ AV weblinks)

Rincon, Gustavo. NMA Futures - (6) Lectures. (10-12), 2024, Graphic Visualization, BCC - PCCD, Class, Berkeley, Online