DATA VISUALIZATION IN VISUAL ART DESIGN

COURSE 80800191-0 | Fall 2026 syllabus

COURSE	Data visualization in Visual Art design	**COURSE NO.**	80800191-0
INSTRUCTOR	Fan Xiang	**EMAIL**	xiangfan@tsinghua.edu.cn
CREDITS	1	**LANGUAGE**	Primarily English
DATES	Oct 23, Oct 30, Nov 6, Nov 13, 2026	**TIME**	Friday afternoon - exact time TBC
ROOM	A412	**FORMAT**	Four connected studio sessions

Course description

Data visualization in Visual Art design is not a software tutorial or a step-by-step guide to making charts. Although many books, online courses, and digital tools can teach students how to reproduce popular visualizations, this course focuses on a more important question: how can we make sense of data and communicate what we discover through visual art?

Students will begin with ordinary sources from everyday life, such as time, sound, movement, personal habits, social relationships, written records, photographs, and historical archives. They will learn to ask where data comes from, who created it, what it reveals, and what may be missing. They will then explore how images, colors, materials, narratives, and interactive forms can help an audience understand the relationships, patterns, and stories hidden within the data.

Across four connected classes, students will choose a topic, collect and examine data, develop visual sketches, build a prototype, receive feedback, and revise their work. The final outcome may be a graphic, animation, website, interactive experience, or physical installation.

The continuous learning cycle

1	**SUBMIT**	Bring the previous stage into class.
2	**CRITIQUE**	Use feedback to identify the next design problem.
3	**LEARN + MAKE**	Add a method, test it in the studio, and build the next version.
4	**ITERATE**	Document decisions and return with a stronger project.

Goals and learning outcomes

The course treats visualization as visual literacy, a research method, and a way of explaining evidence to an audience. By the end of the course, students should be able to:

• Distinguish data visualization art from decorative graphics, conventional charts, and digital art.

• Recognize potential data in images, text, sound, movement, space, time, relationships, and lived experience.

• Document sources and evaluate reliability, absence, bias, uncertainty, and limits of use.

• Turn observations into a clear question by identifying relationships, conflicts, patterns, or anomalies.

• Compare visual representations in relation to content, audience, and viewing context.

• Understand the sequence Data - Rule - Mechanism - Form and test it through sketches, materials, or simple algorithms.

• Use critique, audience testing, and iteration to improve a project.

• Present an original visualization whose sources, logic, form, and point of view can be explained.

Core project: The Secret I Want to See

Choose a subject, phenomenon, or question that you genuinely want to understand. Develop it from raw material to visual expression across the four class cycles. Quantitative or qualitative material is welcome. The final work may be static, time-based, interactive, spatial, or physical.

Seven project questions

• What subject or phenomenon do I want to investigate?

• What do I genuinely want to know?

• What data or material can I find, collect, or create?

• What relationships, conflicts, patterns, or anomalies are hidden in it?

• How do I want people to see it?

• Who is my audience, and what should they understand, compare, discover, or question?

• Why is this visual form appropriate for the question, audience, and viewing context?

CYCLE 1 FRIDAY, OCTOBER 23

Visualization as exploration and expression

Core question: What is visualization, and what questions are worth investigating visually?

Teaching and examples

• Visualization is not simply a beautiful chart or a software technique.

• Visualization as a way to understand history, reality, and personal experience.

• Early digital art and changing media conditions.

• Instructor case studies: Sunset Blvd., Seattle Music Map, and QQ People.

Studio work

• Introduce one digital media or visualization work that matters to you.

• Discuss its material, point of view, audience, and mode of explanation.

• Draft your first version of The Secret I Want to See.

Next deliverable

One-page project intention card: subject, first question, motivation, possible data or material, and initial audience.

CYCLE 2 FRIDAY, OCTOBER 30

Data, evidence, and visual hypotheses

Core question: What can count as data, and how can data become visual evidence?

Teaching and examples

• Critique of project intention cards.

• Data beyond numbers: images, text, sound, paths, space, relationships, and time.

• Source, producer, scope, absence, bias, and uncertainty.

• Finding relationships, conflicts, patterns, and anomalies.

• Audience and representation: the same data can support different ways of seeing.

Studio work

• Audit one source: who made it, when, how, and for what purpose?

• Develop three visual organizations from the same material.

• Compare which organization best helps the intended audience think.

Next deliverable

A source and question deck of at least three pages, plus three sketches with genuinely different organizing ideas.

CYCLE 3 FRIDAY, NOVEMBER 6

From data to rules, mechanisms, and prototypes

Core question: How does data become form, and why does a visual system behave as it does?

Teaching and examples

• Critique the question deck and compare three sketches.

• Data - Rule - Mechanism - Form.

• Algorithms as both tools and metaphors.

• Examples: Boids, cellular automata, reaction-diffusion, L-System, Perlin noise, and particle systems.

• Visual hierarchy, narrative rhythm, interaction, and material choice.

Studio work

• Translate one relationship into an if-then visual rule.

• Run one uncertain material, rule, algorithm, or media experiment.

• Build and critique a first complete proposal or working prototype.

Next deliverable

A risk experiment record, first prototype, one audience test, and an iteration plan based on what the test reveals.

CYCLE 4 FRIDAY, NOVEMBER 13

Final presentation and reflection

Core question: What has the project made visible, and where are the limits of its evidence and expression?

Teaching and examples

- Final project presentation and group critique.
- Comparison of the intention card, three sketches, prototype, audience feedback, and final work.
- Discussion of evidence, ethics, limitations, and possible next steps.
- Visualization as a way to observe, understand, and communicate.

Studio work

- Explain the question, sources, discovery, visual mechanism, audience, and revision.
- Identify what the work cannot claim and what remains unresolved.
- Respond to questions from the class.

Next deliverable

Final work, process documentation, data and source notes, audience test record, and presentation materials.

Assessment

Final percentages and grade thresholds will be confirmed by the instructor and department. Work will be assessed through the following criteria:

• Completion and process: steady progress through each required stage.

• Question: a clear, specific, and worthwhile subject of inquiry.

• Data and evidence: traceable sources and awareness of missing or biased material.

• Insight: discovery of relationships, conflicts, patterns, or anomalies.

• Design and translation: an explainable relationship between data, rules, mechanisms, and form.

• Audience and communication: a representation suited to its audience and context.

• Experiment and iteration: meaningful comparison, risk, feedback, and revision.

• Technical understanding: informed use of tools, code, or generative mechanisms without rewarding complexity for its own sake.

• Participation and presentation: constructive critique and clear explanation of decisions and limits.

Tools and materials

• Library databases, archives, open data, or material collected by the student.

• Paper and drawing tools for rapid sketching.

• Any appropriate tool for graphics, motion, interaction, or prototyping.

• Processing, p5.js, or another environment may be used when code supports the concept.

• Sources must be recorded for data, images, code, models, and AI-assisted material.

Use of generative AI

AI may assist with search strategies, comparison, translation, code explanation, and prototyping. It should not replace observation, question formation, sketch comparison, response to critique, or process writing. Students must verify facts and disclose the tool, the stage where it was used, and its specific effect on the work. AI may not be used to fabricate data, sources, audience tests, or design process. Final policy is subject to departmental confirmation.

Course policies to be confirmed

Attendance, late work, grading percentages, academic integrity, intellectual property, accessibility, student work permissions, submission times, and file archiving will follow institutional and departmental policy.