DES 523 Info Design 1 Data Visualization

Pino Trogu
Professor, Information Design
www.trogu.com

Syllabus – Spring 2023

CLASS HOURS: Hybrid Asynchronous
Tue. 9–11:45 in Rm FA 119

OFFICE HOURS: THU: 9AM–12:00PM

office: zoom meetings
email: trogu@sfsu.edu
web: faculty.sfsu.edu/~trogu

San Francisco State University
College of Liberal and Creative Arts
School of Design

Note: individual items in this syllabus are subject to change.
Last revision: January 30, 2023

CATALOG DESCRIPTION

Introduction to the field of information design focusing on data visualization problems for digital media, print, and environmental communication. Activity. (Plus-minus letter grade only) [Formerly DAI 523]

PREREQUISITES

Restricted to upper-division Design majors or minors; DES 200, DES 300, DES 322, DES 325, DES 327, DES 356, and DES 370; or permission of the instructor.

MISSION STATEMENT

The School of Design serves a diverse body of students in the areas of Product Design and Visual Communication Design at both the undergraduate and graduate levels. Our curricula emphasize design process as a means of problem solving, and our classes help students to build the technical, conceptual, critical, and collaborative skills required in design professions.

COURSE MODALITY:
HYBRID: IN-PERSON & ASYNCHRONOUS

In-person meetings are once a week on Tuesday mornings, from 9–11:45. In the event that course zoom meetings be required, see the link to the Online Education Policy, which lists the rights and responsibilities of faculty and students during video meetings:

S21-264 Revision to #F20-264 Online Education Policy

CLASS COMMUNICATIONS

Class materials are available on Canvas: links to pre-recorded videos, PDFs, and other resources. Email is the preferred mode of communication outside of class times. Students are required to check their SF State email address as all messages, either directly, or via Canvas, will be sent only to those addresses. If your preferred address is not your school address, you must add forwarding to your account or you will miss communications from the instructor.

COURSE DESCRIPTION & GOALS

This class introduces students to the field of information design. In particular, students will complete a series of exercises and projects that explore data visualization problems in print and some (optional) screen applications.

The class goal is to enable students to develop the skills needed to successfully practice data visualization. Emphasis is placed on the ability to visualize numerical data sets, and organize these visualizations into meaningful configurations through visual storytelling.

TOPICS

Education; the economy; politics and elections; health; sports and technology. Other topics can be arranged but *all topics* must be approved in advance by the instructor.

LEARNING OUTCOMES

1. Create visually correct graphs such as bar and line graphs; scatterplots; timelines; maps; and diagrams.
2. Review and apply current technologies used in data visualization such as: R, Tableau, Excel, Numbers, and Illustrator.
3. Create clear, effective information hierarchies for a variety of topics using appropriate graph types and visual storytelling.
4. Mastery of typographic principles of legibility, contrast, and clarity.
5. Introduce students to a methodical process to develop prototypes and arrive at the optimal solution.
6. Discussion of intuitive and innovative data visualization techniques.
7. Discussion of legibility issues and differences between digital and analog applications.
8. Basic psychology of perception from cognitive science research, especially theories of working memory, learning, and remembering, and their relation to cultural conventions, conventions of representation, and shared background knowledge. These topics are outlined in my

handbook and article which can be accessed by clicking on the links below:

Small Handbook of Data Visualization

Counting But Losing Count: the Legacy of Otto Neurath's Isotype Charts

DEFINITION

"Information Design is concerned with making complex information easier to understand and to use. It is a rapidly growing discipline that draws on typography, graphic design, applied linguistics, applied psychology, applied ergonomics, computing, and other fields. It emerged as a response to people's need to understand and use such things as forms, legal documents, computer interfaces and technical information. Information designers responding to these needs have achieved major economic and social improvements in information use."

From *About Information Design*, by Sue Walker and Linda Reynolds. Typography and Graphic Communication Department, University of Reading, U.K.

INSTRUCTION

All demos, videos, and materials are available on Canvas. Assignments will be posted on Canvas on Tuesdays. These will also include pre-recorded video lessons and demonstrations, PDFs, and links to other online resources. During the Tuesday meetings, instructor will review the assignment and provide additional instruction. As time allows, individual feedback will be given that benefits the whole class. There will also be short critiques of everyone's projects. Students are encouraged to share their work and receive feedback not only from the instructor but also from fellow students.

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GRADING SCALE

A	96–100
A–	92
B+	88
B	84
B–	80
C+	76
C	72
C–	68
D+	64
D	60
F	59–0

The grading scale is distributed evenly: there are ten possible letter grades (D– is not included) plus F. Each letter has a range of 4 points, evenly spaced from 100 to 60 (from A to D); F ranges from 0 to 59.

A. Performance of the student has been of the highest level, showing sustained excellence in meeting course responsibilities and personal potential.
B. Performance of the student has been good, though not of the highest level.
C. Performance of the student has been adequate, satisfactorily meeting the course requirements.
D. Performance of the student has been less than adequate.
F. Performance of the student has been such that course requirements have not been met.

SFSU grading policy
http://bulletin.sfsu.edu/policies-procedures/grading/#gradingpolicy

PASSING GRADE

A grade of "C" or higher is required to pass the class. Please note that the course does not include the CR/NC option (only plus or minus letter grade).

GRADING RUBRIC

There are three projects in the semester. Preliminary steps in projects are graded on general completion and are 10 points each. Final steps in projects are 100 or 200 points and will be graded according to the following rubric.

Table 1. Possible grades for each assignment. Points and corresponding letter grades, rounded to the nearest decimal.

Letter/points	10	50	75	100	150	200
A	9.6	48	72	96	144	192
A–	9.2	46	69	92	138	184
B+	8.8	44	66	88	132	176
B	8.4	42	63	84	126	168
B–	8.0	40	60	80	120	160
C+	7.6	38	57	76	114	152
C	7.2	36	54	72	108	144
C–	6.8	34	51	68	102	136
D+	6.4	32	48	64	96	128
D	6.0	30	45	60	90	120
F	<60	<30	<45	<60	<90	<120
Late points (15%)	1.5	7.5	11	15	22.5	30

1. Concept and novelty of idea: 20%
2. Research and iteration: 15%
3. Appropriateness of tools and chosen encodings (correct choice of type of graph): 15%
4. Craftsmanship and attention to detail in graphic visualizations. Attention to typography, layout, and editorial content, including orthography, completeness of sources and credits, as well as project credits: 50%.

ASSIGNMENT IDENTIFICATION

All assignments must be identified with the following credits, in this sequence (Note: the student number will be your 2-digit roster sequential number (leading zero if applicable); *not* your ID number:

| FirstName LastName | DES 523.01 | Project # | Trogu | SFSU | Spring 2023

Note: In the grading rubric, 5 points will be deducted in the craftsmanship criteria if this credit information is missing from the final version of your projects. You must also follow the file naming convention outlined in each specific assignment. See Canvas for exact naming scheme.

CATEGORIES / PROJECTS

The course has five categories/projects:

Category / PROJECTS & Weights

1. Datasets – 11x17	15%
2. Small poster	25%
3. Poster, booklet, "Wild Card"	40%
4. Attendance	20%
TOTAL	**100%**

On Canvas you can check your grade for individual assignments in each category and for the overall course grade. Empty grades in any listed assignment do not affect your overall grade.

WORK REVISIONS

If submitted on time, the final step in categories 1 and 2 assignments can be revised and resubmitted for a better grade, up to a maximum of one extra letter grade above the original grade. Note: being due at the end of the semester, the final submission for Project 3 cannot be revised as described above.

LATE WORK

Unless otherwise noted, assignments will be due every week on Tuesday at 8AM. If an assignment is late, the grade will automatically drop by 15% in the

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week in which it is due, and an additional 15% for each missed week thereafter, calculated after all the other criteria have been taken into account. See Table 1 above for specific points and corresponding letter grades. If you have questions about how you are doing in the class or disagree with a given grade, email me or schedule an appointment with me to discuss your progress.

ATTENDANCE & PARTICIPATION

Attendance in the Tuesday in-person meetings is required. This category is worth 20% of the total class grade.

Attendance points: 60 pts
Each absence = 4 pts
Each tardy or leave-early = 1 pt

Failing the attendance category means missing more than five meetings (20 points) or missing a combination of absences / tardies / leave-early, resulting in a grade of D+ (39/60) or lower for the category and, critically, an automatic maximum grade of D+ for the course.

Attendance is taken at start of class. If you arrive after roll is taken, it's your responsibility to alert me so that you are only marked late and not absent.

Visit URL below for a table of attendance points and corresponding letter grades.

Attendance points & letter grades

Tardy means arriving after roll has been taken. Leave-early means leaving class before the scheduled end of the class. If you need to leave early for any compelling reason please ask in advance. If you arrive to class 1/2 hour after roll is taken, then 2 points will be deducted. If you leave class 1/2 hour before the end of class, 2 points will also be deducted.

Excused absences include being sick or other major events that prevent you from coming to class. You must email me in advance if you know you can't come to class or email me as soon as possible if you can't come because you feel sick that day. This category also includes

collaboration and effort. Design 1s a team enterprise. You should be flexible when working with others and be willing to help them and share your skills when necessary.

NO CELLPHONE USE IN CLASS

Cellphone use is not permitted in the classroom during the in-person class sessions on Tuesdays. At the start of class or upon arrival if late, you are to place your phone in your assigned space in the provided cabinet next to the desks.

Please login to Canvas prior to the start of class if you are using the DUO authentication app. I recommend you also get a "token" as an alternative authentication method. You can request one here:

https://its.sfsu.edu/service/
twofactorauthentication2fa

This is great because you don't need your phone and it will also work if you are traveling abroad with no access to your cellphone number.

During class, you can use your phone only during break, but only outside the classroom, during the regular 15-minute break which is typically from 10:15 to 10:30 AM. If you need to consult online class materials during the regular class time, use your laptop instead or a tablet if you have one. However other, non-course related activities such as texting, internet surfing, and other social media personal activities are also not permitted on the laptop or other electronic devices. Improper phone or laptop usage during the class time as described above will affect your attendance grade as follows: I will subtract 1 point from the attendance category for each instance of phone usage and/or laptop usage not directly related to classroom work.

NO EATING OR DRINKING IN CLASS (WATER OK)

No food or drinks of any kind, besides water, are to be consumed in the class-

room. If anyone eats or drinks during class, they will be asked to leave the classroom. Please be respectful of your fellow students and the teacher to ensure that we keep a clean and welcoming environment. As with the phone policy, I will subtract 1 point from the attendance category for each instance of eating or drinking in class as described above.

WINDOWS & SWEATERS

Please bring an extra sweater or other warm clothing that will keep you warm during class. Masks are only recommended and not required at the time of this writing, but to minimize the risk of covid transmission I will keep the windows open for the duration of the class. Please plan accordingly. I will still be wearing a mask, however as I use a wireless mic and speakers, this will not affect my ability to communicate clearly with the class at all times.

MATERIALS & TOOLS

All projects in the class with the possible exception of the Wild Card option in project 3 (if you choose interactive or web design) are print-based projects. The department has 11x17 and large format color printers and some projects can be printed in-house. These are the specifications for each project:
(1) Datasets: 11 x 17 card stock paper printed in color;
(2) Small poster: 17 x 22 printed in color
(3) One of three options: Poster 30 x 40 printed in color; 8-page / 16-page booklet printed in color; Wild card option (open format) – may be printed on paper or be digital only (screen). Other formats: audio, video, sculpture, performance, etc, are also possible. PDF documentation is required.

For this class, when using a computer, you should use a physical mouse, not the trackpad!
Working on spreadsheets — the datasets or the raw material used in the class — with just a trackpad can get very frustrating very quickly. A mouse will make things much much easier.

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In addition to the laptop and mouse, you should have and use: pencil, sketch paper, tracing paper, and a physical ruler with inches and picas (printer's ruler).

See Canvas for the software programs needed for this class. They are all available as free educational versions from SF State and the respective companies, or available as free, open source versions.

SELECTED BOOKSTORES
William Stout Architectural Books
804 Montgomery, San Francisco
stoutbooks.com

BIBLIOGRAPHY & RESOURCES
Go to Canvas for book suggestions, links to articles, websites, and other resources. Individual assignments will list specific resources needed for those projects.

HONOR PLEDGE
Please read the Honor Pledge at the end of this syllabus. Extract, sign, and upload a copy of the *last page only* at the end of the first week of instruction to acknowledge that you have read the pledge and confirm that you will abide by it throughout the course.

CHEATING & PLAGIARISM
Plagiarism is a form of cheating or fraud; it occurs when a student misrepresents the work of another as his or her own. Plagiarism may consist of using the ideas, sentences, paragraphs, or the whole text of another without appropriate acknowledgment, but it also includes employing or allowing another person to write or substantially alter work that a student then submits as his or her own. Any assignment found to be plagiarized will be given an "F" grade. All instances of plagiarism in the College of Liberal & Creative Arts will be reported to the Dean of the College, and may be reported to the University Judicial Affairs Officer for further action.

Information about the College of Liberal & Creative Arts policy and procedures regarding plagiarism can be found here:

http://lca.sfsu.edu/faculty/plagiarism-resources
Information about rights & fair use:

Code of Best Practices in Fair Use for the Visual Arts, Published by the College Art Association:

best-practices-fair-use-visual-arts.pdf
Other fair use links:
http://fairuse.stanford.edu/overview

https://en.wikipedia.org/wiki/Fair_use

DISABILITY POLICY
Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process.

The DPRC is located in the Student Services Building and can be reached here:

By telephone: voice **(415) 338–2472**
By videophone: **(415) 335–7210**
By email: dprc@sfsu.edu
Website: www.sfsu.edu/~dprc

STUDENT DISCLOSURES OF SEXUAL VIOLENCE
SF State fosters a campus free of sexual violence, including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the Title IX Coordinator by completing the report form available at this website:
http://titleix.sfsu.edu
By email: vpsaem@sfsu.edu
By calling: **415–338–2032**

To disclose any such violence confidentially, contact:

The SAFE Place: **(415) 338-2208**

http://www.sfsu.edu/~safe_plc/
Counseling and Psychological Services Center: **(415) 338-2208**

http://psyservs.sfsu.edu/

For more information on Title IX, on your rights and for available resources:

http://titleix.sfsu.edu

OBSERVANCE OF RELIGIOUS HOLIDAYS
The Academic Senate Policy on the Observance of Religious Holidays (S09-212) indicates that: "The faculty of San Francisco State University shall accommodate students wishing to observe religious holidays when such observances require students to be absent from class activities…" The following is a link to an Interfaith Calendar, which lists "Primary sacred times for world religions":

interfaith-calendar.org

Complete details regarding this policy, including implementation can be found on the Academic Senate website:

policy-observance-religious-holidays

CANVAS SUPPORT
https://canvas.sfsu.edu/

Email: at@sfsu.edu

Telephone: (415) 405-5555

Location: LIB 80, J. Paul Leonard Library

Office Hours: 8am to 8pm Monday through Thursday; 8am-5pm Friday

DROPPING CLASS AND WITHDRAWING
Through the third week of classes, students may drop a class or faculty may

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drop students "who do not attend the first class meeting or do not meet the course criteria" as specified in the Bulletin. Afterwards, please be aware that a WU (unauthorized withdrawal) grade is counted as an F for GPA purposes. To avoid a WU grade, you are encouraged to drop before the end of the third week if you think you will not be able to "meet the course criteria."

In Spring 2023, that deadline is Friday, February 17.

From the beginning of the fourth week through the twelfth week of instruction, withdrawal from a course will be permissible, for serious and compelling reasons, by consulting the faculty member teaching the course. The student must complete a "Petition for Withdrawal from Course or University" and submit the petition to the instructor for a decision. Such approved withdrawals will result in a "W" grade, which does not affect your GPA.

The full university rules regarding withdrawals can be found at:

http://senate.sfsu.edu/policy/withdrawal-courses

You, the student, are responsible for withdrawals and should be aware of relevant deadlines related to the withdrawal process. All important dates are listed in the Academic Calendar for the specific semester:

https://webapps.sfsu.edu/public/webcal/acadcalendar

See also this page on on the university's website on Dropping and Withdrawing:

https://registrar.sfsu.edu/withdrawal

COVID19 INFORMATION

See below regarding covid-19 safety:

Policy Resolution #SU20-292 Temporary Changes to #F10-257 Syllabus Policy to Enhance COVID-19 Communication

policy_on_temporary_changes_to syllabus

RIGHTS AND RESPONSIBILITIES

We have placed a lot of emphasis in this country on the idea of people's *rights.* That's how it should be, but it makes no sense to talk about rights without also talking about responsibilities.

from The Last Lecture
by Randy Pausch

_____

To paraphrase from Prof. Pausch's book, this syllabus is an agreement between you, the student, and myself, the teacher.

You have the responsibility to be honest in your work and work constructively with the teacher and the other students. In return, you have the right to be in the course and receive constructive feedback from the teacher. This will be in the form of grading and comments on the assignments or communication via email or other formats allowed by the online format of the course.

I will read every email – the preferred office mode of communication – and will try to respond promptly to the best of my ability.

HONOR PLEDGE

I pledge on my honor that I will complete all the assignments in this course in full honesty and without the improper help from others. I will not use ready-made solutions found in books, on the internet, or elsewhere. Thus, I will not digitally copy images of graphs such as line, bar, or scatterplot charts, and paste them into my own designs and layouts, and present them as my work.

Also, I will not use automated websites to create my data visualizations. Meaning that I will not use graph output functions of websites that provide ready-made graphs (line charts, bar charts, scatterplots, etc.) that can be generated at the touch of a button, and printed and/or exported as PDFs or other formats. I pledge instead to first obtain my spreadsheets where these are available, clean the datasets, and later create my own visualizations using the programs and software available on my computer, instead of using a web-based service.

Furthermore, I will not copy a particular data visualization solution (infographic) and submit it as my own. I will consult with the instructor in advance to determine what is an acceptable "fair use" of an existing visualization. In such cases, if approved. I will recreate the visualization or adapt it by first collecting the original dataset (spreadsheet); then I will process the data through a data visualization tool (R, Excel, Numbers, Tableau, etc.). But, I will also not recreate it by redrawing or tracing over the original image, using Illustrator or other image processing programs.

I pledge to follow the rules outlined here and be honest about my work for this course throughout the semester.

I have read and I agree to the syllabus and to the Honor Pledge above.

Signature _____

Print name: _____

Date: _____

Upload a copy of just this last page, signed and dated, to Assignment 0.1, at the end of the first week of instruction.