GE3104: DATA IS BEAUTIFUL: VISUALIZATION IN THE HUMANITIES

Effective Term
Semester A 2024/25

Part I Course Overview

Course Title
Data is Beautiful: Visualization in the Humanities

Subject Code
GE - Gateway Education
Course Number
3104

Academic Unit
Linguistics and Translation (LT)

College/School
College of Liberal Arts and Social Sciences (CH)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

GE Area (Primary)
Area 1 - Arts and Humanities

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
Nil

Precursors
Nil

Equivalent Courses
Nil

Exclusive Courses
Nil

Part II Course Details

Abstract

Visualization offers powerful methods to help us understand the world around us. It is used to reveal the hidden connections, patterns and stories inside any dataset, whether it is the patterns in a great literary work, the timelines of a historical collection or the geographic distribution of important archaeological sites. Furthermore, the density of information now available to scholars in a networked and digital era is enormous. We are inundated with thousands of words on e-mails, tweets, digital documents and web pages every day. As the sheer volume overwhelms one's ability to digest text-based information in the traditional way, we increasingly rely on visualization methods to help us summarize and analyze documents and textual data. Humanists, including artists and designers, are developing visualizations as essential ways in which to 'see' their data.

The theoretical aspect of this course offers students a general introduction to data visualization, visual complexity and information aesthetics. The applied aspect of this course focuses on the visualization of documents and textual data. Students will learn the fundamentals of visualization techniques on textual data, evaluate their benefits and drawbacks, and apply them in a hands-on term project.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Describe information visualization principles and examples based on humanities datasets.		x		
2	Apply visualization methods on a text, and demonstrate the benefits and pitfalls of these techniques.			x	
3	Demonstrate understanding of the goals, strengths and weaknesses of the major visualization methods.		x	x	
4	Apply a visualization method to a term project with hands-on experience.				x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Learning and Teaching Activities (LTAs)

	LTAs	Brief Description	CILO No.	Hours/week (if applicable)
1	Lecture	Students will engage with the exposition on fundamentals of visualization and its applications to the humanities	1, 2, 3	

2	In-class exercises	Students will do exercises on using and designing visualization interfaces	2, 3, 4	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Term project	2, 3, 4	30	
2	Assignment (one)	2, 3, 4	20	
3	Quiz (one)	1, 2, 3	20	

Continuous Assessment (%)

70

Examination (%)

30

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

1. Term project

Criterion

Ability to select an appropriate visualization technique for documents or textual data, to produce a meaningful and aesthetically pleasing visualization for the data, and critically assess its quality and usefulness

Excellent (A+, A, A-)

The student demonstrates a high level of proficiency in the design and analysis of the visualization

Good (B+, B, B-)

The student demonstrates a significant level of proficiency in the design and analysis of the visualization

Fair (C+, C, C-)

The student demonstrates a moderate level of proficiency in the design and analysis of the visualization

Marginal (D)

The student demonstrates a basic level of proficiency in the design and analysis of the visualization

Failure (F)

The student does not demonstrate even a marginal level of proficiency in the design and analysis of the visualization

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Assessment Task

2. Examination

Criterion

Ability to demonstrate a critical understanding of the concepts of visualization the applications of visualization techniques in the humanities, and their strengths and limitations in facilitating analysis of language data

Excellent (A+, A, A-)

The student demonstrates a high level of understanding of the concepts and proficiency in completing the required tasks

Good (B+, B, B-)
The student demonstrates a significant level of understanding of the concepts and proficiency in completing the required tasks

Fair (C+, C, C-)
The student demonstrates a moderate level of understanding of the concepts and proficiency in completing the required tasks

Marginal (D)
The student demonstrates a basic level of understanding of the concepts and proficiency in completing the required tasks

Failure (F)
The student does not demonstrate even a marginal level of understanding of the concepts and proficiency in completing the required tasks

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Assessment Task
3. Quiz

Criterion
Ability to demonstrate an understanding of the theory of data visualization techniques, their applications in the humanities, and their strengths and limitations

Excellent (A+, A, A-)
The student demonstrates a high level of understanding of the relevant concepts

Good (B+, B, B-)
The student demonstrates a significant level of understanding of the relevant concepts

Fair (C+, C, C-)
The student demonstrates a moderate level of understanding of the relevant concepts

Marginal (D)
The student demonstrates a basic level of understanding of the relevant concepts

Failure (F)
The student does not demonstrate even a marginal level of understanding of the relevant concepts

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Assessment Task
4. Assignment

Criterion
Ability to apply visualization techniques on documents or other textual data, and analyze their strengths and limitations

Excellent (A+, A, A-)
The student demonstrates a high level of proficiency in completing the required tasks

Good (B+, B, B-)
The student demonstrates a significant level of proficiency in completing the required tasks

Fair (C+, C, C-)
The student demonstrates a moderate level of proficiency in completing the required tasks

Marginal (D)
The student demonstrates a basic level of proficiency in completing the required tasks

Failure (F)
The student does not demonstrate even a marginal level of proficiency in completing the required tasks

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Part III Other Information

Keyword Syllabus
Information visualization; interactive visualization; digital humanities; textual analysis; computational linguistics

Reading List

Compulsory Readings

	Title
1	Steele, Julie & Noah Iliinsky (2010). Beautiful Visualization: Looking at Data through the Eyes of Experts. O' Reilly.
2	Stanford Literary Lab Pamphlets (https://litlab.stanford.edu/pamphlets/)

Additional Readings

	Title
1	Harmon, Katharine & Gayle Clemans. The Map as Art: Contemporary Artists Explore Cartography.
2	Lima, Manuel. Visual Complexity: Mapping Patterns of Information.
3	McCandless, David. Information is Beautiful.
4	Cherven, Ken (2013). Network Graph Analysis and Visualization with Gephi. Packt Publishing.
5	Tufte, Edward. Visual Explanations: Images and Quantities, Evidence and Narrative.
6	Tufte, Edward. Envisioning Information.
7	Ware, Colin. Visual Thinking: for Design (Morgan Kaufmann Series in Interactive Technologies).

Annex (for GE courses only)

A. Please specify the Gateway Education Programme Intended Learning Outcomes (PILOs) that the course is aligned to and relate them to the CILOs stated in Part II, Section 2 of this form:

Please indicate which CILO(s) is/are related to this PILO, if any (can be more than one CILOs in each PILO)

PILO 1: Demonstrate the capacity for self-directed learning
4

PILO 2: Explain the basic methodologies and techniques of inquiry of the arts and humanities, social sciences, business, and science and technology
1

PILO 3: Demonstrate critical thinking skills
2, 3

PILO 4: Interpret information and numerical data
3, 4

PILO 5: Produce structured, well-organised and fluent text
4

PILO 6: Demonstrate effective oral communication skills

4

PILO 7: Demonstrate an ability to work effectively in a team

4

PILO 10: Demonstrate the attitude and/or ability to accomplish discovery and/or innovation

4

B. Please select an assessment task for collecting evidence of student achievement for quality assurance purposes. Please retain at least one sample of student achievement across a period of three years.

Selected Assessment Task

Term project, where student will apply a visualization method and analyze its strengths and weaknesses