ATENEO DE MANILA UNIVERSITY
Loyola Schools

SYLLABUS FOR GRADUATE COURSES

A. COURSE INFORMATION

COURSE NUMBER	CSCI 217			**NO. OF UNITS**	3
COURSE TITLE	DATA VISUALIZATION				
PREREQUISITE/S	(none)				
DEPARTMENT/ PROGRAM	Department of Information Systems and Computer Science			**SCHOOL**	Science and Engineering
SCHOOL YEAR	2024-2025			**SEMESTER**	Intersession
INSTRUCTOR/S	Magpantay, Abraham; Co, Shawn				
VENUE	F-227	**SECTION**	H	**SCHEDULE**	18:30-20:00 M/T/W/TH/F

B. COURSE DESCRIPTION

In this course, students will learn to manipulate, analyze, and visualize data. No prior experience with programming is required, but exposure to programming logic is an advantage.

Lab work will be interspersed with lectures on design fundamentals. In a major class project, students (in pairs or small groups) will create—conceptualize, design, and implement—a useful visualization based on a real-world dataset.

WHERE IS THE COURSE SITUATED WITHIN THE FORMATION STAGES IN THE FRAMEWORK OF THE LOYOLA SCHOOLS CURRICULA	
✓	FOUNDATIONS: Exploring and Equipping the Self
✓	ROOTEDNESS: Investigating and Knowing the World
	DEEPENING: Defining the Self in the World
	LEADERSHIP: Engaging and Transforming the World

C. PROGRAM LEARNING OUTCOMES

PROGRAM LEARNING OUTCOMES		ATTRIBUTES OF AN IDEAL ATENEO GRADUATE			
		CONSCIENCE	COMPETENCE	COMPASSION	COMMITMENT
PLO1	Identify critical needs of society that may be addressed by ICT.	✔	✔	✔	
PLO2	Identify concepts involved in computational problem-solving.		✔		
PLO3	Apply solutions to the problems using a computer language, mathematics data structures, or an appropriate blend of technologies.		✔		
PLO4	Ethically conduct research towards designing appropriate technology solutions for a given problem.	✔	✔	✔	✔
PLO5	Systematically select appropriate technologies and tools to solve problems.	✔	✔	✔	
PLO6	Effectively work in interdisciplinary teams towards building and implementing relevant and innovative solutions.		✔		
PLO7	Approach problems with a systems thinking mindset.	✔	✔	✔	✔
PLO8	Demonstrate analytical, and critical thinking towards building appropriate, relevant, and innovative solutions.	✔	✔	✔	✔
PLO9	Exhibit professionalism in all areas of work		✔		✔
PLO10	Develop leadership skills within ICT organizations.	✔	✔	✔	✔
PLO11	Create technological solutions while being aware of its sustainability and moral implications.	✔	✔	✔	✔

D. COURSE LEARNING OUTCOMES

By the end of this course, students should be able to:

COURSE LEARNING OUTCOMES		PROGRAM LEARNING OUTCOMES
CLO1	Apply design principles in creating effective visualizations	PLO6
CLO2	Select appropriate visualizations for different kinds of datasets & objectives	PLO6, PLO8, PLO11
CLO3	Be familiar with how data transforms within the Business Intelligence lifecycle	PLO3, PLO5, PLO6, PLO8, PLO11
CLO4	Be familiar with tools for data processing and visualization	PLO5, PLO8, PLO11
CLO5	Create effective dashboards/reports using Tableau	PLO3, PLO5, PLO6, PLO11

E. COURSE OUTLINE and LEARNING HOURS

Course Outline	CLOs	Estimated Learning Hours
Module 1: Introduction to Data Visualization, Intro to Data Collection Design Principles in relation to data visualization	CLO 1, 2	6
Module 2: Data Collection and Preparation A. Business Intelligence lifecycle B. Identifying data requirements C. Introduction to data models & ETL D. ETL using Tableau Prep Builder	CLO 3, 4	10
Module 3: Data Visualization & Dashboarding Tools, Introduction to Tableau A. Overview of different tools for data visualization and dashboarding B. Navigating the Tableau Interface C. Overview of Tableau Visualization Principles D. How to build basic charts in tableau: line chart, bar chart, stacked bar chart, scatterplot/bubble chart, tree map/pie chart E. Calculated Fields F. Analytics in Tableau	CLO 4, 5	12
Module 4: Dashboarding in Tableau A. Dashboards & Data Stories B. Building dashboards/Data Stories on Tableau C. Filters, Interactions	CLO 5	10
Module 5: Alternative Visualization Tools; Introduction to Final Project A. Datawrapper/Power BI B. Consultation for Final Project	CLO 5	8
Final Project Development & Presentation	CLO 1, 2, 5	10

F. ASSESSMENTS AND RUBRICS

ASSESSMENT TASKS	Assessment Weight	CLOs
Exercises/Quizzes	15%	CLO 2, 3
Homework/Lab Exercises	45%	ALL
Final Project & Presentation *July 17-20, 2024*	30%	ALL
Paper Submission *July 20, 2024*	10%	ALL

** Dates may be adjusted as deemed necessary.

G. TEACHING AND LEARNING METHODS

TEACHING & LEARNING METHODS and ACTIVITIES	CLOs
Slides, Lecture Notes, and Videos	ALL
Face-to-Face Onsite Classroom Discussion, Asynchronous Sessions	ALL
Lab Assignments	ALL
Project Development	ALL
Virtual and On-campus Consultations	ALL
Virtual and On-campus Presentations	ALL

H. REQUIRED READINGS

Slides, notes, articles, and any other additional reading provided during the conduct of the class. Downloadable course materials will be made available on the Canvas course page.

I. SUGGESTED READINGS

- Iliinsky, N. and Steele, J., 2011. *Designing Data Visualizations*. Sebastopol: O'Reilly.
- Cleveland, W. and McGill, R., 1984. Graphical Perception: Theory, Experimentation, and Application to the Development of Graphical Methods. *Journal of the American Statistical Association*, 79(387), pp.531-554.

J. GRADING SYSTEM

93.00 or above	A	Excellent
87.00 — 92.99	A-	Very Good
81.00 — 86.99	B+	Good
75.00 — 80.99	B	Satisfactory
69.00 — 74.99	C	Unsatisfactory, no graduate credit
Below 69	F	Passing
	W	Less than 33.33% of requirements fulfilled
	INC	Incomplete grade owing to failure to submit course requirements

- ★ Rounding off is at the discretion of the instructor.
- ★ Rounding off is not automatic.

K. CLASS POLICIES

- **Learning Management System (LMS)**
  - All course-related information will be made available on the **CSCI 117i/217 Canvas course page** for your section.
  - It is the responsibility of each student to frequently check the website for announcements, assignments, and other updates regarding the course. Students are expected to check Canvas before sending any inquiries regarding the course.
  - Only students who are officially enrolled will be able to access the Canvas course page.
  - Only students who are officially enrolled will be allowed to participate in the class.

- Students who experience sudden unexpected prolonged loss of internet connectivity are **expected** to inform their instructor via SMS or via any other means of communication.

- **Class Sessions**
  - Unless otherwise announced on Canvas or via email (e.g. cancellation of classes, delayed starting time), onsite sessions and activities will be held at the regular class schedule at each section's assigned classroom lab. Zoom or Google Meet will be used for online sessions and consultations should there be a need for these. Links will be provided via the course's Canvas page.
  - **Students are expected to regularly attend and fully participate in onsite class sessions.** In situations where absence is unavoidable due to extenuating circumstances, the student is expected to inform the instructor as soon as possible.
  - The use of computers in the classroom lab shall be restricted to class-related activities, when allowed by the instructor. Playing games and visiting social network sites are strictly prohibited during class hours. Keep distractions to a minimum. Please put all personal electronic devices in silent mode during class.
  - Attendance may or may not be *explicitly* checked. If a student is absent, they are responsible for updating themselves on the material covered during the session.
  - Students who exceed the maximum of **five (5) excused or unexcused absences** will receive an automatic grade of **W** (Withdrawal without Permission).
  - Students who arrive after attendance has been checked are deemed late. One count of late is equivalent to half an absence.
  - Students must abide by the DISCS Laboratory Usage Policy when using the classroom lab.

- **Online Communication**
  - Students must use official channels when communicating with the instructor in the context of this course:
    - Email: Ateneo account
    - Video Conferencing: Google Meet or Zoom using the Ateneo account
    - Instant Messaging: Canvas Inbox, Canvas Course Chat, Google Chat
    - Or any other channels explicitly agreed with your instructor
  - Students are encouraged to communicate courteously, efficiently, and succinctly.

- **Requirements and Submissions**
  - **Class requirements are due the week before finals and follow a staggered approach** (e.g. the student will be unable to submit the next requirement if the previous one has not yet been submitted), though students are highly encouraged to complete labs and quizzes the week they are announced in order to distribute the course load. Late submissions may be considered at the discretion of the instructor, provided that the student informs the instructor ahead.
  - **Students are expected to carefully and thoroughly read and follow instructions.**
  - All submissions must be virus-free. Infected or corrupted files will not be checked and will automatically receive a grade of zero for that requirement.

- **Academic Integrity**
  - Cheating, in any form or circumstance, will not be tolerated. Cheating in any requirement will result in a minimum penalty of a grade of zero for that requirement, and will be reported to the appropriate authorities, as specified in the LS Student Handbook.
  - Students are expected to maintain a high level of intellectual honesty and a high respect for intellectual property. With each submission, students must include a certification (Certificate of

Authorship) that their work is substantially their own and not copied from others. In addition, students must clearly acknowledge and specify any help from outside sources such as other classmates, the Web, books, etc., that they received while doing their academic work. Failure to acknowledge such may be interpreted as intellectual dishonesty.

- Students are expected to abide by the DISCS Academic Integrity Policy.

- **LS Academic Policies**
  - Students are expected to be familiar with the policies described in the ADGP Memo dated 24 April 2023 regarding Graduate Level Academic Policies, SY 2024-2025, as well as the VPLS Memo dated 19 April 2023 regarding Teaching and Learning Arrangements for Undergraduate Classes, SY 2023-2024.
  - Students are expected to abide by the Data Privacy and Copyright policies described in Section K (Page 7) of the AVP-UEd Academic Policies.

- **Other**
  - If there are any current or emergent circumstances that make learning difficult, please inform the instructor right away.
  - Students are encouraged to raise their hands and share their thoughts or use the chat function at any time during a class session (and not just when the instructor asks if there are questions). This gives the instructor a sense of what you're thinking and what your reactions are. Students are also encouraged to respond to each other's thoughts and opinions.
  - Students must adhere with the DISCS Policies 2024 and accomplish the Conforme at the end of the class orientation.
  - This course will adhere to the policies on gender inclusivity and administrative rules on sexual harassment and other forms of sexual misconduct. For more information, kindly refer to these links:
    - Gender Policy
    - Code of Decorum
    - Undergraduate Student Handbook

L. CONSULTATION HOURS

- Consultations will occur via e-mail or—upon request of the student—via Zoom/Google Meet or on campus.
- Consultations are recommended to be scheduled during the provided consultation hours, especially for onsite consultations.
- Consultations must be scheduled at least 24 hours in advance, excluding Sundays and holidays.
  - When contacting via email, please indicate [CSCI 217] at the beginning of the subject line.

NAME OF FACULTY	EMAIL	DAY/S	TIME
Abraham Magpantay	amagpantay@ateneo.edu	Thu	8-9 PM, or by appointment
Shawn Co	ssco@ateneo.edu	Mon, Tue	5-6 PM, or by appointment