

**GENERAL COURSE INFORMATION**

<b>Fall 2020</b>	
<b>GENERAL COURSE INFORMATION</b>	
Course Code and Title	CSBP487 Data Visualization
Prerequisite	CSBP421
Co-requisite	None
Credit Hours	3 Hrs
Contact Hours	2 sessions of 75 minute lectures + one session of a 50 minute lab
Course Schedule	Not offered
Course Coordinator	Jose Berengueres, Email: <a href="mailto:jose@uaeu.ac.ae">jose@uaeu.ac.ae</a> 0553519573 Slack: viza.slack.com

**CATALOGUE DESCRIPTION**

This course will cover advanced topics in computer graphics. How to convert data into information and information into knowledge. The emphasis will be on scientific visualization, animation, and data storytelling.

**TEXTBOOK**

Jose Berengueres, [Introduction to Data Visualization & Storytelling](#): A Guide For The Data Scientist. 2E, 2019 ISBN: 978-1085827836

**VIDEOS**

[https://www.youtube.com/playlist?list=PL8Ob471RcQSA9AUMdm\\_J81Zk-N39IujPZ](https://www.youtube.com/playlist?list=PL8Ob471RcQSA9AUMdm_J81Zk-N39IujPZ)  
<https://www.udemy.com/course/data-visualization-storytelling/>

**REFERENCE BOOK**

Tamara Munzner, Visualization Analysis and Design, 1/E, A K Peters Visualization Series, CRC Press, 2014, ISBN: 978-1466508910

**TEACHING AND LEARNING METHODOLOGIES (Choose what applies to you)**

Lecture, projects, tutorials

**COURSE OUTCOMES**

Upon completion of this course, students will

1. Apply computer graphics techniques to visualize different types of data
2. Compare different types of animations
3. Create knowledge from information
4. Demonstrate knowledge of scientific data visualization methods

TOPICAL OUTLINE			
Time Line (Instructional Week)	Topic(s)	CLOs	Course Activities/ Teaching & Learning Methods
Week 1	The DIKW framework. Difference between data and information. Junkcharts. (Ch.1)	3	Lecture
Week 2	Information. Creating Knowledge from information. (udemy ch 1,2)	1	Lecture
Week 3	The Chart as a bicycle for the Mind. Maps for meetings & Teamwork(udemy ch 3,4)	1	Lecture
Week 4	Psychology of Visualization. Bias & Ethics (udemy ch 5,6)	1	Lecture
Week 5	Case studies. (udemy ch 7)	1	Lecture
Week 6	(udemy ch 8)	1	Lecture
Week 7	Midterm Exam	-	-
Week 8	Knowledge creation with Tableau, NPS framework case (Ch.7, Ch.8)	1	Lecture
Week 9	Explaining data with Jupyter notebooks (handout)	2, 3	Lecture
Week 10	Introduction to D3.js	2, 3	Lecture/Class discussion/ in-class exercise
Week 11	Parametric design with Grasshoper (handout)	2, 3	Lecture/Class discussion
Week 12	Webbers law. Optical illusions in charts (Torsten Moller)	3	Lecture
Week 13	Industry cases. Market trends.	3	Lecture/ tutorial
Week 14	Project. (handout)	4	Lecture/ discussion
Week 15	Project.	4	Project
Week 16	Final exam	-	

GRADING		
Assessment Methods	Weight	Due Date
Quizzes	10%	Two: one before the midterm and one before the final exam
Assignments/presentations	10%	Assignments (x2): before midterm 2 <sup>nd</sup> , 3 <sup>rd</sup> week of instruction.
Midterm	20 %	7 <sup>th</sup> week of instruction.
Final	30 %	16 <sup>th</sup> week of instruction (As per Banner)
Project	30%	15 <sup>th</sup> week of instruction.
Rubrics	Rubrics will be provided to students, as applicable, for grading their direct assessment works such as essays, research papers or reports, oral presentations and group activities.	
Feedback	Feedback on progress in the course will be regularly provided to students to keep them informed and provide them with opportunities to improve their performance.	

### COURSE CONTRIBUTION

1. Apply computer graphics techniques to visualize different types of data
2. Compare different types of animations
3. Demonstrate knowledge of scientific data visualization methods
4. Create a computer graphic animation using industry standard tools

Contribution of CLOs to Programs Learning Outcomes (PLOs)				
	CLO1	CLO2	CLO3	CLO4
BSc. CS	PLO1, PLO10, PLO11	PLO8	PLO6	PLO11

PLOs of all the BSc. programs are available at:

<http://www.cit.uaeu.ac.ae/en/programs/undergraduate/>