



**AMERICAN UNIVERSITY  
OF CYPRUS**

<b>Course Code</b> ADSA 401	<b>Course Name</b> Advanced Design Applications	<b>ECTS Credit</b> 6
<b>Pre-Requisite</b> -	<b>Course Type</b> Compulsory	<b>Language of Instruction</b> English
<b>Year of Study</b> 4 <sup>th</sup>	<b>Level of Course</b> 8 <sup>th</sup> Semester	<b>Mode of Delivery</b> On Campus

**Course Objectives:**

This course aims to set the basic elements, principles, and methodologies in the emerging and rapidly developing field of spatial analysis and visualization. Through this course, students explore and analyze data, develop data mining skills, and learn to apply visual design principles to their research output. Data mining, data analytics, and data visualization seek to explore new ways of untangling the complexity of data through design

**Learning Outcomes:**

- Define a significant range of skills, techniques, tools, practices, and/or materials that are associated with data mining and data visualization.
- Demonstrate research activities and set achievable intermediate goals appropriate to a project of advanced research. Employ analytical and methodological skills in developing design concepts.
- Analyze and explore tools, skills, and production methods of emergent technologies in design media, focusing on creative visualization, analysis and utilization of data.
- Identify the crucial role of perception of information and analyze a large and complex body of information.
- Move from design standardization to specialized application.

**Teaching Methodology:**

- Studio work
- Visual presentations
- Conceptual models and drawings
- Lectures
- Project briefing
- Monitor discussions
- Visual research methodologies
- Brainstorming techniques
- Concept development processes
- Interaction and collaborative learning
- Guest speakers
- Personal research, realization, and manipulation in project work
- Continuous evaluation and assessment
- Extended references and bibliography

**Course Content:**

The course is divided into three parts:

1- Explore data fields:

The transition from traditional design objectives to exploring big data to find innovative objectives.

2- Data mining:

Analyzing and selecting/grouping/typologizing data sets.

3- Data Visualization:

Visualize composite and hybrid data sets to better understand complexity and reveal new design patterns.

**Assessment Methods:**

Participation, Midterm, Final

**Required Textbooks/Reading:**

<b>Title</b>	<b>Author(s)</b>	<b>Publisher</b>	<b>Year</b>
Visual complexity. Mapping patterns of information.	Lima, M.	Princeton Architectural Press.	2013
Information Graphics	Rendgen S., Wiedemann, J.	TASCHEN	2018
Data Visualisation	Kirk, A.	Sage Publications	2019
Steps to an Ecology of Networked Knowledge and Innovation: Enabling New Forms of Collaboration among Sciences, Engineering, Arts, and Design	Roger F. Malina, Carol Strohecker, and Carol LaFayette	MIT Press,	2012