

BALIKESIR UNIVERSITY
FACULTY OF FINE ARTS
UNIVERSITY ELECTIVE COURSE INTRODUCTION FORM

Department / Division	Graphic Arts		
Course Name	(XXXX) Scientific Visualization and Medical Illustration		
Course Semester	Autumun	Spring	X
Language of the Course	Turkish	X	English
Course Credits	Theoretical	3	Practical 0 Total Credits 3
Course ECTS	3		
Course Learning Type	Elective		
Course Objective	The ability to visualize human anatomy, biological structures, and medical processes with scientific accuracy.		
Course Content	Visual storytelling in health and science communication, Anatomical visualization at the human, animal, and cellular levels, Introduction to scientific visualization and basic principles, Medical terminology.		
Course Prerequisites	None		
Instructors	Doç.Dr. Aylin GÜNGÖR	mail : aylin.gungor@balikesir.edu.tr	
Course Assistants		mail :	
Internship Status of the Course	None		

Course Resources			Klug, A., & Pietsch, M. (2024). <i>Can artificial intelligence help for scientific illustration?</i> Critical Care, Article 49–70. https://doi.org/10.1186/s13054-024-04970-8 Gajjar, D., et al. (2024). <i>Art and neurosurgery: The importance of medical illustration in modern practice.</i> Journal of Neurosurgical Visualization. https://pubmed.ncbi.nlm.nih.gov/37838159/ Guerra, D. (2025). <i>What type of medical illustrations best improve understanding of scientific content?</i> Journal of Visual Communication in Medicine. https://doi.org/10.1080/17453054.2025.2504441 Suwanprinya, P. (2024). <i>Surgical illustration: The role, the reason, and the route.</i> Journal of Visual Communication in Medicine. https://doi.org/10.1080/17453054.2024.2331004 Organ, J. M., & Taylor, R. (2023). <i>Science communication and biomedical visualization in the age of AI.</i> Journal of Biomedical Visualization. https://pubmed.ncbi.nlm.nih.gov/37524981/ MDPI. (2026). <i>Evolution of visualization technologies in healthcare: AI-driven approaches.</i> Information, 17(3), 281. https://doi.org/10.3390/info17030281			
Course Structure			Field of Study: %100			
Planned Learning Activities and MethodsMetodları			Lecture, Question-Answer, Exercises and Application, Individual Study, Problem Solving, Project-Based Learning			
Course Evaluation Criteria			Course ECTS Calculation Content			
Semester Works	Number	Contribution (%)	Activity	Number	Duration	Total Workload (Hours)
Midterm Exam	1	%40	Course Duration	14	3	42
Quiz	0	%0	Out-of-Class Work	14	2	28
Homework	0	%0	Midterm Exams	1	8	8
Continue	0	%0	End-of-Term Exam	1	8	8
Application	0	%0	Total Workload:86			
Project	0	%0	ECTS Credits:3			
End-of-Term ExamSınavı	1	%60				

Course Learning Outcomes	Course LO01: Defines advanced concepts, methods, and terminology in the field of scientific visualization and medical illustration. LO02: Analyzes and visually represents biological structures at the human, animal, and microscopic levels with scientific accuracy. LO03: Produces original medical and scientific illustrations using traditional, digital, and AI-supported techniques. LO04: Develops visual storytelling solutions that can be used in health communication and scientific publications. LO05: Transforms scientific content into visual language using an interdisciplinary approach (medicine, biology, design, artificial intelligence).			
	Course Topics			
	Week	Subjetc	Prelimin ary	Documents
	1	Definition, scope, and interdisciplinary nature of scientific visualization and medical illustration.	Case Studies Reviews	Aylin Güngör Lecture Notes
	2	The history of medical illustration and the development of scientific visual culture.	Case Studies Reviews	Aylin Güngör Lecture Notes
3	Introduction to human anatomy: systems and basic structural analysis.	Case Studies Reviews	Aylin Güngör Lecture Notes	
4	Animal anatomy and comparative biological structures	Case Studies Reviews	Aylin Güngör Lecture Notes	
5	Microscopic visualization: cells, tissues, and organelles.	Case Studies Reviews	Aylin Güngör Lecture Notes	
6	Traditional techniques: drawing, sketching, shading, and anatomical illustration.	Case Studies Reviews	Aylin Güngör Lecture Notes	
7	Scientific diagram, schematic and infographic design.	Case Studies Reviews	Aylin Güngör Lecture Notes	
8	Midterm Exam.	Case Studies Reviews	Aylin Güngör Lecture Notes	
9	Visual storytelling and clinical information transfer in health communication.	Case Studies Reviews	Aylin Güngör Lecture Notes	
10	Design of visual systems for data visualization and scientific publications.	Case Studies Reviews	Aylin Güngör Lecture Notes	
11	Visual storytelling and clinical information transfer in health communication.	Case Studies Reviews	Aylin Güngör Lecture Notes	
12	AI-powered visualization: production, editing, and optimization.	Case Studies Reviews	Aylin Güngör Lecture Notes	
13	Digital reconstruction of anatomical structures.	Case Studies Reviews	Aylin Güngör Lecture Notes	
14	Ethics, scientific accuracy, and copyright in medical illustration.	Case Studies Reviews	Aylin Güngör Lecture Notes	
15	Final project presentations: medical illustration portfolio development and evaluation.	Case Studies Reviews	Aylin Güngör Lecture Notes	

**Contribution of the
Course to Curriculum
Outcomes**

Tüm: P01:4, P02:4, P03:4, P04:4, P05:4, P06:4, P07:4, P08:4, P09:4, P10:4, P11:4, P12:4 | Ö01: P01:3, P02:4, P03:4, P04:3, P05:5, P06:4, P07:4, P08:2, P09:3, P10:3, P11:4, P12:3 | Ö02: P01:4, P02:5, P03:5, P04:4, P05:3, P06:3, P07:5, P08:4, P09:4, P10:2, P11:5, P12:4 | Ö03: P01:5, P02:4, P03:4, P04:4, P05:4, P06:4, P07:5, P08:4, P09:4, P10:4, P11:4, P12:4 | Ö04: P01:3, P02:4, P03:5, P04:5, P05:5, P06:5, P07:4, P08:5, P09:5, P10:5, P11:3, P12:5 | Ö05: P01:4, P02:4, P03:3, P04:3, P05:3, P06:3, P07:3, P08:3, P09:3, P10:4, P11:4, P12:4