Işık University
Faculty of Arts and Sciences
Department of Physics

PHYS 141 – Science and Nature I

COURSE SYLLABUS

Course Name	Code	Semester	Theory (hour/week)	Application (hour/week)	Laboratory (hour/week)	Local Credits	ECTS
Science and Nature I	PHYS 141	Fall	**3**	0	**0**	**3**	5

Prerequisities	None

Course Language	English
Course Type	Elective
Course Level	First Cycle
Course Coordinator	-
Course Lecturer(s)	-
Course Assistants	-
Course Objectives	This course is designed for science non-majors students to give a multidisciplinary understanding of science and nature. By the end of the course, students should • Understand basic concepts of our knowledge of nature • Learn the method of scientific thinking • Formulate questions and hypotheses relating to scientific
Course Learning Outcomes	On successful completion of this course students will be able to 1. Apply analytical and critical thinking skills to contemporary global issues 2. Describe the interrelationships between science, technology, and society 3. Develop an understanding in global issues in science and the society it affects 4. Demonstrate an ability to function on teams 5. Improve students' oral and written communication skills
Course Content	Introduction of some of the basic concepts of our knowledge of nature; natural laws in their interconnectivity; the way science operates, the method of scientific thinking; global issues in science; origins of life proved through scientific evidence; probing a scientific question in practice. The answers that we have -or don't have as yet.

WEEKLY SUBJECTS AND RELATED PREPARATION STUDIES

Week	Subject
1	Introduction to what science is and how it works
2	Historical background of scientific methods
3	Experimental design
4	Hypothesis driven science
5	Great themes of natural science
6	Ethics and science
7	Review on scientific methodology
8	Atoms and chemistry
9	Origins of life
10	Genetics and evolution
11	Science and society
12	Pseudoscience
13	Review on science and global issues
14	Energy concepts
15	Critical scientific thinking

TEXTBOOKS

Required Textbook(s)	James Trefil, Robert M. Hazen The Sciences: An Integrated Approach Wiley 5th Edition, 2007
Recommended Readings	• Peter Kosso. The book of nature: an introduction to the philosophy of science, Cambridge University Press, Cambridge, 1992. • Per Bak. How nature works. Springer, New York, 1996

EVALUATION SYSTEM

Semester Requirements	**Number**	**Percentage of Grade**
Attendance/Participation	-	-
Laboratory	-	-
Application	-	-
Field Work	-	-
Special Course Internship (Work Placement)	-	-
Quizzes/Studio Critics	3	6
Homework Assignments	10	16
Presentation/Jury	-	-
Project	-	-
Seminar/Workshop	-	-
Midterms/Oral Exams	2	52
Final/Oral Exam	1	26
Total	16	100

Percentage of Semester Work	15	74
Percentage of Final Work	1	26
Total	16	100

COURSE CATEGORY

ISCED GENERAL FIELD CODE	GENERAL FIELDS	ISCED MAIN AREA CODE	MAIN EDUCATIONAL AREAS	%
1	Eğitim	14	Öğretmen Yetiştirme ve Eğitim Bilimleri	0
2	Beşeri Bilimler ve Sanat	21	Sanat	0
2	Beşeri Bilimler ve Sanat	22	Beşeri Bilimler	0
3	Sosyal Bilimler, İşletme ve Hukuk	31	Sosyal ve Davranış Bilimleri	0
3	Sosyal Bilimler, İşletme ve Hukuk	32	Gazetecilik ve Enformasyon	0
3	Sosyal Bilimler, İşletme ve Hukuk	38	Hukuk	0
4	Bilim	42	Yaşam Bilimleri	0
4	**Bilim**	**44**	**Doğa Bilimleri**	**80**
4	**Bilim**	**46**	**Matematik ve İstatistik**	**20**
4	Bilim	48	Bilgisayar	0
5	Mühendislik, Üretim ve İnşaat	52	Mühendislik	5
5	Mühendislik, Üretim ve İnşaat	54	Üretim ve İşleme	0
5	Mühendislik, Üretim ve İnşaat	58	Mimarlık ve Yapı	0
6	Tarım	62	Tarım, Ormancılık, Hayvancılık ve Su Ürünleri	0
6	Tarım	64	Veterinerlik	0
7	Sağlık ve Refah	72	Sağlık	0
7	Sağlık ve Refah	76	Sosyal Hizmetler	0
8	Hizmet	81	Kişisel Hizmetler	0
8	Hizmet	84	Ulaştırma Hizmetleri	0
8	Hizmet	85	Çevre Koruma	0
8	Hizmet	86	Güvenlik Hizmetleri	0

THE RELATIONSHIP BETWEEN COURSE LEARNING OUTCOMES AND PROGRAM OUTCOMES

Number	Program Outcomes	Level of Contribution*				
		1	2	3	4	5
1	To have a comprehension of the core areas of physics, including classical and quantum mechanics, electromagnetism, statistical and thermal physics.	X				
2	To have a comprehension of basic mathematics, including differential and integral calculus, linear algebra, differential equations and complex analysis.					
3	To have a comprehension of computer programming and chemistry.	X				
4	To have a comprehension of the importance and practice of good ethical standards.			X		
5	To have a recognition of contemporary issues in science and its applications.					X
6	To have an ability to construct theoretical models, solve problems, design and conduct experiments, as well as to analyze and interpret data.			x		
7	To have an ability to demonstrate their understanding of at least one advanced topic in theoretical or experimental physics.					
8	To have an ability to function on multi-disciplinary teams			X		
9	To have an ability to effectively communicate information in both written and verbal form		X			
10	To have a recognition of the need for and an ability to engage in life-long learning.				X	
11	To have an ability to use modern physics techniques, skills, and computing tools necessary for physics practice (use laboratory and workshop equipment to generate data, prepare technical drawings, prepare technical reports, give technical presentations, take notes effectively, write computer programs, use mathematics and/or computational tools and packages to make models) .					

*1 Lowest, 2 Low, 3 Average, 4 High, 5 Highest

Contribution of Course Learning Outcomes to Program Outcomes	The class contributes to the student development in terms of building a foundation for science and sceintific methodology for further study. Students should develop problem solving abilities and enhance critical thinking and improve their written communication skills.

ECTS / WORKLOAD TABLE

Activities	**Number**	**Duration (Hour)**	**Workload (Hour)**
Course Hours (Including Exam Week: 16 x Total Hours)	15	3	45
Laboratory	-	-	-
Application	-	-	-
Special Course Internship (Work Placement)	-	-	-
Field Work	-	-	-
Study Hours Out of Class	15	2	30
Presentations / Seminar	-	-	-
Project	-	-	-
Homework Assignments	10	2	20
Quizzes	3	1	3
Midterms / Oral Exams	2	9	18
Final / Oral Exam	1	9	9
		Total Workload	**125**
		Total Workload/25	**5**