Bilkent University Department of Physics

PHYS 124 - Freshman Project

Semester:	Spring 2024		
Instructor:	Cemal Yalabık		
Office:	Room SA-228	Phone 1316	
Office Hours:	Fridays	12:40 - 13:30	Room SA-228
	All other times	(if available - call 1316 to check)	Room SA-228
Assistant:	?		

About the course:
This course intends to impart to the student, knowledge and capabilities associated with basic research methods and tools needed to carry out research in Physics. The course will involve 2 hours/week of classroom instruction in which the student will be exposed to such subjects as literature and citation search through indices, planning and carrying out research procedures, research ethics, use of scientific computer tools for statistical analysis, report construction and presentation. Class hours coincide with the Colloquium times, and there will be no class on Colloquium days.

The course will proceed in relation with a project on a specific topic in physics or a closely related area. The course will expose students to research through projects that require no prior knowledge beyond the high school level.

Teaching goals include practicing critical thinking, analyzing cause and effect relationships, planning controlled experiments, as well as gaining familiarity with useful skills such as literature search and scientific document preparation.

Homework:
The project activity and classroom topics will generate regular assignments aiming to provide sufficient practice of the tools thought during class.

Attendance requirement
If a student misses more than 6 hours of class, (s)he will need to compensate this by completing assignments which will take much longer time to do, or the grade will be an F.

Grading:
The grading will be based on the progress of the student's research project, which will be assessed regularly during the semester through the reports and presentation material that will have to be prepared. Students will also be graded on the presentation of their project at the end of the semester.

Homework performance and attendance will also affect the final grade.

Assignments:

Literature search homework	10%	Due Wednesday Feb. 14
Project proposal	10%	Due Wednesday Feb. 21
LaTex homework	10%	Due Wednesday Mar. 13
Project progress report	10%	Due Wednesday Mar. 20
Numerical modeling homework 1	10%	Due Wednesday Apr. 3
Numerical modeling homework 2	10%	Due Wednesday Apr. 17
Project report	10%	Due Wednesday Apr. 24
Project presentation material	10%	Due Wednesday May 8
Project presentation	20%	

Assignments are to be submitted through the Moodle system, in the form of a PDF file.
Please name the file in the format:

surname-ID-HW#.pdf (e.g. yalabik-34534534-Literature_search_HW.pdf)

You can view your grades through the Stars system.

Course Schedule:

First meeting: Wednesday, Jan. 31, 15:30 - 16:20 in Room SA-Z0x

Lectures:	Wednesdays	15:30 - 16:20	Room SA-Z0x
Laboratory sessions:	Wednesdays	15:30 - 16:20	Room B-???

There will be changes to this program, based on the Colloquium schedule. Watch this web page for changes!

Week		Class discussion	Tasks/Assignments	Lab work (Tuesday Afternoons)
#1	Jan. 31	Introduction, description of work to be carried out [Discussion of possible project topics]	Discussion of available personal and university resources	
#2	Feb. 7	Literature search Planning a project Hypothesis, analysis/experiment, evaluation	Class discussions on all of the project topics Students come with printed material related to possible topics Selection of general area of the project	
#3	Feb. 14	Introduction to LaTex Tutorial Files The LaTex manual Gnuplot information	Literature search homework due	
#4	Feb. 21	More Latex	Project proposal due	
#5	Feb. 28	Lab work		Latex and Gnuplot applications
#6	Mar. 6	No class		
#7	Mar. 13	Numerical modeling	LaTex homework due	
#8	Mar. 20	Lab work	Project progress report due	Numerical modeling applications
#9	Mar. 27	Lab work		Numerical modeling exercise

#10	**Apr. 3**	Research ethics	Numerical modeling homework 1 due	
#11	**Apr. 10**	Holiday week		
#12	**Apr. 17**	Scientific writing Scientific presentations	Numerical modeling homework 2 due	
#13	**Apr. 24**	No class	Project report due (Latex generated PDF)	
#14	**May 1**	Holiday - No class		
#15	**May 8**	No class	Presentation material due on Thursday	
#16	**May 15**	Presentations	Project Presentations	Project Presentations

Some examples of student project presentation material from previous years