AGU Graduate School of Engineering and Science ……
Program

COURSE RECORD	
Code BENG 612	
Name Cell Death	
Hour per week	3 (3 + 0)
Credit 3	
ECTS 7,5	
Level/Year	Graduate
Semester	-
Type	Elective
Location	AGU
Prerequisites	None
Special Conditions	-
Coordinator(s)	
Webpage	
Content	Cell death results in the termination of normal cellular processes. This course provides an overview about the different cell death mechanisms and the guidelines that are followed based on morphological, biochemical and functional characteristics that are used to identify the different types of cell death. It will also introduce the different that are used to detect and dissect cell death pathways
Objectives	- Introduction to the guidelines and definition of cell death. - Describe the difference between programmed and non-programmed cell death - Present the different morphological, biochemical and functional characteristics of the different cell death mechanisms - Review the latest insights into different cell death pathways - Discuss cell death in the context of experimental and internal medicine including cancer, immunity and neuroscience. - Introduce the different techniques to detect and dissect cell death pathways
Learning Outcomes	LO1: Be able to define the differences between various cell death mechanisms LO2: Learn to identify the different mechanisms of cell death based on the morphological, biochemical and functional characteristics LO3: Be able to read and discuss research articles and analyze the scientific data LO4: Be able to describe the techniques to detect and dissect cell death pathways LO5: Be able to present the recent findings of research articles in cell death mechanisms
Requirements	None.
Reading List	Research articles.
Ethical Rules and Course Policy	

LEARNING ACTIVITIES

Activities	**Number**	**Weight (%)**
Lecture	7	30%
Group Works	2	35%
Presentations	7	35%
Site Visits	0	0%
	Total	100

ASSESSMENT

Evaluation Criteria	**Weight** (%)

Quizzes	20%
Weekly Assignments	15%
Group Project Assignments & Presentations	30%
Attendance/Participation	05%
Final Exam/Submission	40%
Total	100%

For a detailed description of grading policy and scale, please refer to the website https://goo.gl/HbPM2y section 28.

COURSE LOAD *Please, use this one as a reference for your course*

Activity	**Duration** (hour)	**Quantity**	**Work Load** (hour)
In class activities	2	14	28
Lab	0	0	0
Group work	2	12	24
Research (web, library)	6	14	84
Required Readings	3	14	42
Pre-work for Presentation	5	14	70
Lab reports	0	0	0
		General Sum	**248**

ECTS: 7,5 (Work Load/25-30)

CONTRIBUTION TO PROGRAMME OUTCOMES*

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12	PO13	PO14
LO1	1	5	3	4	5	5	5	4						
LO2	2	5	3	4	5	5	4	4						
LO3	2	5	5	5	5	4	4	3						
LO4	2	5	5	5	5	5	5	5						
LO5	2	5	5	5	5	5	5	5						

* Contribution Level: 0: None, 1: Very Low, 2: Low, 3: Medium, 4: High, 5: Very High

WEEKLY SCHEDULE

W	**Topic**	**Outcomes**
1	Introduction to cell death	LO1, LO2
	Activity: None	
2	The difference between programmed and non programmed cell death	LO1, LO2, LO3
	Activity: Research article discussion	
3	Intrinsic and extrinsic apoptotic pathways	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
4	Mitochondrial Permeability Transition (MPT)- driven necrosis	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
5	Necroptosis, Ferroptosis and Pyroptosis	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
6	Parthanatos	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
7	Entotic Cell Death	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
8	NETotic Cell Death	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
9	Entotic Cell Death	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
10	Lysosome Dependent Cell Death	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
11	Autophagy Dependent Cell Death	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
12	Immunogenic Cell Death	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
13	Cellular Senescence	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5
14	Mitotic Catastrophe	LO1, LO2, LO3,
	Activity: Research article discussion	LO4, LO5

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