

Date	Day	Title	Lecturer	Hours	Time
UNIT 1: Introduction to Nanotechnology (15 ECTS)					
Lesson 1.1. Basic principles I					
W1					
13/10/2022	Thursday	Introduction to the course and future perspectives projects	E. Efstathopoulos	1	15.00-16.00
		0.1 Basics of Physics	E. Efstathopoulos	1	16.00-17.00
		0.2 Basics of Chemistry	H. Iatrou	1	17.00-18.00
		0.3 Basics of Biology	M. Gazouli, E. Katifelis	1	18.00-19.00
14/10/2022	Friday	0.4 Basics of Pharmaceutical science	C. Demetzos	2	15.00-17.00
		0.5 Introduction to implementation of scientific project (structure, literature search etc)	E. Efstathopoulos - A. Ploussi	2	17.00-19.00
15/10/2022	Saturday	1.1.1 The wider context of Nanotechnology and Nanomedicine	E. Efstathopoulos	2	10.00-12.00
		1.1.1 The wider context of Nanotechnology and Nanomedicine	N. Lagopati	1	12.00-13.00
W2					

Date	Day	Title	Lecturer	Hours	Time
20/10/2022	Thursday	1.1.2 The Fundamental Science of Nanotechnology	D. Tsoukalas	2	15.00-17.00
		Lesson 1.2. Basic principles II			
		1.2.1 Main types of nanosystems	C. Demetzos	2	17.00-19.00
21/10/2022	Friday	1.2.1 Main types of nanosystems	H. Iatrou	4	15.00-19.00
22/10/2022	Saturday	1.2.1 Main types of nanosystems	A. Pippa	2	10.00-12.00
		1.2.1.a Main types of nanosystems_Metallic nanoparticles	E. Spyratou	2	12.00-14.00
		W3			
3/11/2022	Thursday	1.2.1.b Main types of nanosystems_Bimetallic nanoparticles	M. Gazouli	2	15.00-17.00
		1.2.2 Nanostructured materials	M. Gazouli	2	17.00-19.00
4/11/2022	Friday	1.2.3 Physiochemical characterization techniques of nanosystems electron Microscopy	H. Iatrou	2	15.00-17.00

Date	Day	Title	Lecturer	Hours	Time
		1.2.3 Physiochemical characterization techniques of nanosystems	E. Spyratou	2	17.00-19.00
5/11/2022	Saturday	1.2.3 Physiochemical characterization techniques of nanosystems Light Scattering	A. Pippa	2	10.00-12.00
		0.5 Introduction to implementation of scientific project (structure, literature search etc)	E. Efstathopoulos - A. Ploussi	2	12.00-14.00
W4					
10/11/2022	Thursday	1.2.4 Principles of Nanomedicine	E. Katifelis	1	15.00-16.00
		1.2.4 Principles of Nanomedicine	E. Efstathopoulos	1	16.00-17.00
		Lesson 1.3. Basic principles III			
11/11/2022	Friday	1.3.1 Short overview of in-vivo imaging techniques			
		1.3.1.a Radiodiagnosis and Interventional Radiology	E. Brountzos	1	15.00-16.00
		1.3.1.b Nuclear Medicine	S. Chatziioannou	1	16.00-17.00
		1.3.1.c Nuclear Medicine - Micro PET	A. Gaitanis	1	17.00-18.00

Date	Day	Title	Lecturer	Hours	Time
12/11/2022	Saturday	1.3.1.d Physics of imaging with x-rays	E. Efstathopoulos	2	10.00-12.00
		1.3.1.e Physics of Radiotherapy	E. Pantelis	2	12.00-14.00
W5					
18/11/2022	Friday	1.3.1 Short overview of in-vivo imaging techniques			
		1.3.1.d Physics of imaging with x-rays	E. Efstathopoulos	3	15.00-18.00
		1.3.1.f Imaging in interventional radiology	D. Filippiadis	1	18.00-19.00
19/11/2022	Saturday	1.3.1 Short overview of in-vivo imaging techniques			
		1.3.1.g Neuroscience	G. Tsivgoulis	2	10.00-12.00
		1.3.1.h Neurosurgery	S. Sgouros	2	12.00-14.00
W6					
24/11/2022	Thursday	1.3.2 Future perspectives and challenges - Student's project	E. Efstathopoulos	5	15.00-20.00

Date	Day	Title	Lecturer	Hours	Time
25/11/2022	Friday	1.3.2 Future perspectives and challenges - Student's project	E. Efstathopoulos	5	15.00-20.00
W7					
2/12/2022	Friday	EXAMS UNIT 1		2	15.00-17.00

UNIT 2 : Applications of Nanotechnology in Medicine (15

Date	Day	Title	Lecturer	Hours	Time
Lesson 2.1. Basics of Nanomedicine					
W8					
8/12/2022	Thursday	2.1.1 Introduction to pharmacokinetics (Absorption Distribution, Metabolism, Excretion)	E.Karalis	2	15.00-17.00
		2.1.2 Immunology of Nanoparticles	N. Pippa	2	17.00-19.00
9/12/2022	Friday	2.1.3 Applications of nanotechnology in vaccines	N. Pippa	2	15.00-17.00
		2.1.4 Introduction in pharmacodynamics	A. Papapetropoulos	2	17.00-19.00
10/12/2022	Saturday	2.1.5 Modelling and simulation in drug development and approval	A. Dokoumetzidis	3	10.00-13.00
W9					
15/12/2022	Thursday	2.1.6 Nanomolecular diagnostics and in vitro diagnostics	M. Gazouli	2	15.00-17.00
		2.1.6.a The Pathology perspective	N. Kavantzias	2	17.00-19.00

Date	Day	Title	Lecturer	Hours	Time
16/12/2022	Friday	2.1.6.b The Microbiology-Immunology perspective	I. Papaparaskevas	2	15.00-17.00
		2.1.7 Introduction to lipidic structures, liquid crystals and mRNA vaccines	C. Demetzos	1	17.00-18.00
		2.1.8 Introductions to Polymers in Pharmaceutics	E. Iatrou	1	18.00-19.00
17/12/2022	Saturday	2.1.9 Applications of nanotechnology in biophotonic therapy	V. Kouloulias, N. Lagopati	3	10.00-13.00
W10					
12/1/2023	Thursday	2.1.10 Introduction to modified release systems for drug delivery	M. Vlachou	2	15.00-17.00
		2.1.11 Introduction to skin pathology and nanoparticulate's penetration mechanism	M. Rallis	2	17.00-19.00
13/1/2023	Friday	2.1.12 Nanovaccines - mRNA based vaccines	C. Demetzos	2	15.00-17.00
		2.1.13 Drug stability and principles of Pharmaceutical Technology	N. Pippa	2	17.00-19.00

Date	Day	Title		Lecturer	Hours	Time
14/1/2023	Saturday	2.1.14	Development and structure of a scientific presentation	G. Mastorakos	2	10.00-12.00
		2.1.15	Literature research	N. Drakoulis	1	12.00-13.00
Lesson 2.2 Basic applications of nanotechnology in therapy						
W11						
19/1/2023	Thursday	2.2.1	Applications of nanotechnology in cardiovascular diseases	I. Andreadou	2	15.00-17.00
		2.2.2	Applications of nanotechnology in pharmacology	A. Papapetropoulos	2	17.00-19.00
20/1/2023	Friday	2.2.3	Stealth antigenic properties of nanoparticles	A. Pippa	2	15.00-17.00
		2.2.4	Nanogels and polymeric micelles	E. Iatrou	2	17.00-19.00
21/1/2023	Saturday	2.2.5	Nanoparticulate formulations and skin diseases	M. Rallis	3	10.00-13.00

Date	Day	Title	Lecturer	Hours	Time
W12					
26/1/2023	Thursday	2.2.6 Clinical therapeutics and nanotechnology	S. Markantoni-Kyroudis	2	15.00-17.00
		2.2.7 Introduction and applications to theranostics	D. Mouzakis	2	17.00-19.00
27/1/2023	Friday	2.2.8 Applications of nanotechnology in nuclear therapy and in Radiotherapy	V. Kouloulis [1h], K. Platoni [1h]	2	15.00-17.00
		2.2.9.a Introduction to radiotherapy: Physicist's contribution	K. Platoni	1	17.00-18.00
		2.2.9.b Introduction to radiotherapy: Doctor's contribution	V. Kouloulis	1	18.00-19.00
28/1/2023	Saturday	2.2.10 Applications of nanotechnology in Orthopaedics	O. Savvidou	2	10.00-12.00
Date	Day	Title	Lecturer	Hours	Time

2.2.11 Applications of nanotechnology in Surgery

G. Theodoropoulos

1 12.00-13.00

**Lesson 2.3 Theranostics and regenerative
medicine**

W13

2/2/2023	Thursday	2.3.1	Lipidic nanocarriers. Liposomes, chimeric lipidic nanoparticles and stimuli responsive	C. Demetzos	2	15.00-17.00
		2.3.2	Physical properties of stimuli responsive biomaterials	D. Mouzakis	2	17.00-19.00
3/2/2023	Friday	2.3.3.a	Smart biomaterials	D. Mouzakis	2	15.00-17.00
		2.3.3.b	Smart biomaterials	E. Iatrou	1	17.00-18.00
		2.3.3.c	Smart biomaterials	N. Pippa	1	18.00-19.00

Date	Day	Title	Lecturer	Hours	Time
4/2/2023	Saturday	2.3.4 Biosensors, nanocrystals, quantum dots, magnetic nanoparticles II (applications)	D. Mouzakis	3	10.00-13.00
W14					
9/2/2023	Thursday	2.3.5 Application of smart biomaterials in regenerative medicine. Types of embryonic, fetal and adult stem cells	M. Roubelaki	2	15.00-17.00
		2.3.5 Application of smart biomaterials in regenerative medicine. Doctor's perspective	I. Triantafyllopoylos	2	17.00-19.00
10/2/2023	Friday	2.3.6 Implementation of M.Sc. Thesis	G. Mastorakos	1	15.00-16.00
		2.3.6 Implementation of M.Sc. Thesis	N. Drakoulis	1	16.00-17.00
		2.3.6 Implementation of M.Sc. Thesis	Th. Papaioannou	1	17.00-18.00
11/2/2023	Saturday	2.3.7 Applications of Nanotechnology in interventional radiology	S. Spiliopoulos	1	10.00-11.00
		2.3.8 Nanobubbles	M. Vavouranakis	1	11.00-12.00
W15					
17/2/2023	Friday	2.3.9 Future perspectives and challenges (students'project 5h)	C. Demetzos	5	15.00-20.00
18/2/2023	Saturday	2.3.9 Future perspectives and challenges (students'project 3h)	C. Demetzos	3	10.00-13.00
W16					
23/2/2023	Thursday	EXAMS OF UNIT 2		2	15.00-17.00

UNIT 3: Nano-toxicity and Regulatory aspects (10 ECTS)

Date	Day	Title	Lecturer	Hours	Time
Lesson 3.1 Toxicity aspects (Gazouli, katifelis, Rallis)					
W17					
2/3/2023	Thursday	3.1.1 Potential cause of nanotoxicity	M. Rallis	3	15.00-18.00
3/3/2023	Friday	3.1.2 Interaction of nanoparticles	M. Gazouli	2	15.00-17.00
		3.1.3 Distribution of nanoparticles (different organs and the role of physiochemical characteristics)	M. Gazouli	2	17.00-19.00
4/3/2023	Saturday	3.1.4 Toxicity studies	E. Katifelis	2	10.00-12.00
		3.1.5 Nanoparticles and Human Body	E. Katifelis	2	12.00-14.00
Lesson 3.2 Current nanodrugs (Demetzos)					
W18					

Date	Day	Title	Lecturer	Hours	Time
9/3/2023	Thursday	3.2.1 Nanodrugs in clinical practice	C. Demetzos, A. Pippa	3	15.00-18.00
10/3/2023	Friday	3.2.1 Nanodrugs in clinical practice	C. Demetzos	2	15.00-17.00
			A. Pippa	1	17.00-18.00
11/3/2023	Saturday	3.2.2 Advanced nanoparticle systems	P. Bouzioti	2	10.00-12.00
			S. Pispas	1	12.00-13.00
Lesson 3.3 Ethics and regulatory aspects					
W19					
16/3/2023	Thursday	3.3.1 Nanomaterials and Manufacturing: framing the ethical issues	D. Mouzakis	3	15.00-18.00
17/3/2023	Friday	3.3.2 Nanosimilars	D. Mouzakis	2	15.00-17.00

Date	Day	Title	Lecturer	Hours	Time
		3.3.3 Regulatory issues of nanomedicines and nanocosmetics & applications of nanotechnology in cosmeotology	C. Gardikis	3	17.00-20.00
W20					
23/3/2023	Thursday	3.3.4 Future perspectives and challenges - Students' project	M. Gazouli	5	15.00-20.00
24/3/2022	Friday	3.3.4 Future perspectives and challenges - Students' project	M. Gazouli	5	15.00-20.00
W21					
31/3/2023	Friday	EXAMS OF UNIT 3		2	15.00-17.00
W22					

Date	Day	Title	Lecturer	Hours	Time
5/5/2023	Friday	Presentation of Dissertation Protocols (students' presentations)	E. Efstathopoulos [2h], C. Demetzos [2h], M. Gazouli [1h]	5	15.00-20.00
6/5/2023	Saturday	Presentation of Dissertation Protocols (students' presentations)	E. Efstathopoulos [2h], C. Demetzos [2h], M. Gazouli [1h]	5	10.00-15.00
W23					
8/9/2023	Friday	EXAMS		2	15.00-17.00