

Academic Calendar 2025-2026

Timetable for Self Study, Future Perspectives Projects and Exams

No. of Week	Date (from)	Date (to)	Title	Lecturer
UNIT 1: Introduction to Nanotechnology (12 ECTS)				
Lesson 1: Basic principles I (6 ECTS)				
1	13/10/2025	19/10/2025	Introduction to the course and future perspectives projects	E. Efstathopoulos
			1.1 Basics of Physics	E. Efstathopoulos
			1.2 Basics of Chemistry	H. Iatrou
			1.3 Basics of Biology	M. Gazouli, E. Katifelis
			1.4 Basics of Pharmaceutical science	C. Demetzos
			1.5 The wider context of Nanotechnology and Nanomedicine	N. Lagopati
			1.5 The wider context of Nanotechnology and Nanomedicine	E. Efstathopoulos
			1.6 The Fundamental Science of Nanotechnology	D. Tsoukalas
			1.7 Introduction to implementation of scientific project (structure, literature search etc)	E. Efstathopoulos - A. Ploussi
			1.8 Principles of Nanomedicine	E. Katifelis

2	20/10/2025	26/10/2025	1.8 Principles of Nanomedicine	E. Efstathopoulos
			1.9 Main types of Nanosystems	C. Demetzos
			1.9 Main types of Nanosystems	H. Iatrou
3	27/10/2025	02/11/2025	1.9 Main types of Nanosystems	A. Pippa
			1.10.a Main types of Nanoparticles_Metallic nanoparticles	E. Spyratou
			1.10.b Main types of Nanoparticles_Bimetallic nanoparticles	M. Gazouli
			1.11 Nanostructured materials	M. Gazouli
1st Meeting with Professors, Saturday 01/11/2025, 10:00-14:00 Meeting link: https://uoa.webex.com/meet/esiomou				
Lesson 2: Basic principles II (6 ECTS)				
4	3/11/2025	9/11/2025	2.1 Physiochemical characterization techniques of nanosystems electron Microscopy	E. Spyratou
			2.1.a Physiochemical characterization techniques of nanosystems: Electron Microscopy	H. Iatrou
			2.1.b Physiochemical characterization techniques of nanosystems: Light Scattering	A. Pippa
			2.2 Short overview of in-vivo imaging techniques:	
			2.2.a Radiodiagnosis and Interventional Radiology	S. Spiliopoulos

5	10/11/2025	16/11/2025	2.2.b Nuclear Medicine	S. Chatziioannou
			2.2.c Nuclear Medicine - Micro PET	A. Gaitanis
			2.2.d Physics of imaging with x-rays	E. Efstathopoulos
			2.2.e Physics of Radiotherapy	E. Pantelis
			2.2.f Imaging in interventional radiology	D. Filippiadis
			2.2.g Neuroscience	G. Tsiygounis - L. Palaiodimou
			2.2.h Neurosurgery	S. Sgouros

2nd Meeting with Professors, Saturday 15/11/2025, 10:00-14:00

Meeting link: <https://uoa.webex.com/meet/esiomou>

6	22/11/2025	Future perspectives and challenges - Students' project		E. Efstathopoulos
7	29/11/2025	Examination of Unit 1		

UNIT 2: Applications of Nanotechnology in Medicine (18 ECTS)

No. of Week	Date (from)	Date (to)	Title	Lecturer
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			Lesson 3: Basics of Nanomedicine (6 ECTS)	
8	15/12/2025	21/12/2025	3.1 Introduction to pharmacokinetics & pharmacodynamics	V.Karalis
			3.2 Applications of nanotechnology in vaccines	N. Pippa
			3.3 Drug stability and principles of Pharmaceutical Technology	N. Pippa
			3.4 Modelling and simulation in drug development and approval	V.Karalis
			3.5 Nanomolecular diagnostics and in vitro diagnostics: The Microbiology-Immunology perspective	I. Papaparaskevas
			3.6 Introduction to lipidic structures, liquid crystals and mRNA vaccines	C. Demetzos
			3.7 Introductions to Polymers in Pharmaceutics	E. Iatrou
9	05/01/2026	11/01/2026	3.8 Introduction to modified release systems for drug delivery	M. Vlachou
			3.9 Introduction to skin pathology and nanoparticulate's penetration mechanism	M. Rallis
			3.10.a Nanovaccines - mRNA based vaccines	C. Demetzos
			3.10.b Nanovaccines - mRNA based vaccines	S. Hatziantoniou
			3.11 Nanomolecular diagnostics and in vitro diagnostics	M. Gazouli
			3.12 Natural biopolymers in drug delivery	L. Tziveleka

3rd Meeting with Professors, Saturday 10/01/2026, 10:00-14:00 Meeting link: https://uoa.webex.com/meet/esiomou				
Lesson 4: Basic applications of nanotechnology in therapy (6 ECTS)				
10	12/01/2026	18/01/2026	4.1 Applications of nanotechnology in pharmacology	C. Dalla
			4.2 Nanogels and polymeric micelles	E. Iatrou
			4.3 Nanoparticulate formulations and skin diseases	M. Rallis
			4.4 Introduction and applications to theranostics	D. Mouzakis
			4.5 Applications of nanotechnology in biophotonic therapy	V. Kouloulas, N. Lagopati
			4.6 Applications of nanotechnology in nuclear therapy and in Radiotherapy	V. Kouloulas [1h], K. Platoni [1h]
11	20/01/2025	26/01/2025	4.6.a Introduction to radiotherapy: Physicist's contribution	K. Platoni
			4.6.b Introduction to radiotherapy: Doctor's contribution	V. Kouloulas
			4.7 Applications of nanotechnology in Orthopaedics	O. Savvidou
			4.8 Applications of nanotechnology in Surgery	G. Theothoropoulos

4th Meeting with Professors, Saturday 24/01/2026, 10:00-14:00

Meeting link: <https://uoa.webex.com/meet/esiomou>

Lesson 5: Theranostics and regenerative medicine (6 ECTS)

12	26/01/2026	01/02/2026	5.1 Lipidic nanocarriers: Liposomes, chimeric lipidic nanoparticles and stimuli responsive	C. Demetzos
			5.2 Physical properties of stimuli responsive biomaterials	D. Mouzakis
			5.3.a Smart biomaterials	D. Mouzakis
			5.3.b Smart biomaterials	E. Iatrou
			5.4 Biosensors, nanocrystals, quantum dots, magnetic nanoparticles II (applications)	D. Mouzakis
13	02/02/2026	08/02/2026	5.5 Application of smart biomaterials in regenerative medicine. Types of embryonic, fetal and adult stem cells	M. Roubelaki
			5.6 Implementation of M.Sc. Thesis	G. Mastorakos
				N. Drakoulis
				Th. Papaioannou
			5.7 Applications of Nanotechnology in interventional radiology	S. Spiliopoulos
			5.8 Nanobubbles	M. Vavouranakis

5th Meeting with Professors, Saturday 07/02/2026, 10:00-14:00

Meeting link: <https://uoa.webex.com/meet/esiomou>

14	21/02/2026	Future perspectives and challenges - Students' project	C. Demetzos
15	22/02/2026	Examination of Unit 2	

UNIT 3: Nano-toxicity and Regulatory aspects (20 ECTS)

Lesson 6: Toxicity aspects & Current Nanodrugs (5 ECTS)

16	02/03/2026	08/03/2026	6.1 Potential cause of nanotoxicity	M. Rallis
			6.2 Interaction of nanoparticles	M. Gazouli
			6.3 Distribution of nanoparticles (different organs and the role of physiochemical characteristics)	M. Gazouli
			6.4 Toxicity studies	E. Katifelis
			6.5 Nanoparticles and Human Body	E. Katifelis
17	09/03/2026	15/03/2026	6.6 Nanodrugs in clinical practice	N. Pippa
			6.7 Advanced nanoparticle systems	P.Bouzioti

Lesson 7: Advanced topics (5 ECTS)

			7.1 AI in nanomedicine	
			7.2 AI motives (image analysis, volatile analysis)	N. Lagopati

18	16/03/2026	22/03/2026	7.3 3D printing and bionanomimetics	N. Lagopati
			7.4 Neural Networks and Complexity	Michael Chantias
			7.5 Application of chaos theory in pharmacy	Stavros Stavrinides
Lesson 8: Enviromental aspects				
19	23/03/2026	29/03/2026	8.1 Anti-polution technologies	N. Lagopati
			8.2 Nanoenergy fingerprinting	N. Lagopati
Lesson 9: Ethics and regulatory aspects (5 ECTS)				
19	23/03/2026	29/03/2026	9.1Nanomaterials and Manufacturing: framing the ethical issues	D. Mouzakis
			9.2 Regulatory issues of nanomedicines and nanocosmetics & applications of nanotechnology in cosmeotology	C. Gardikis
6th Meeting with Professors, Saturday 04/04/2026, 10:00-14:00				
Meeting link: https://uoa.webex.com/meet/esiomou				
20	18/04/2026		Future perspectives and challenges - Students' project	M. Gazouli

21	19/04/2026	Examination of Unit 3	
22	23/05/2026	Presentation of Dissertation Protocols (students` presentations)	Demetzos, M. Gazouli
	24/05/2026	Presentation of Dissertation Protocols (students` presentations)	Demetzos, M. Gazouli

Dissertation Thesis (25 ECTS)

23	05/09/2026	Repeat Examination	
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