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"Data Science and Machine Learning"
DAMA Postgraduate Program

School of Science & Technology

Dimitris Kalles
Professor, DAMA Director

DAMA aims at …

- Delivering knowledge and developing skills on state-of-the-art methods and computing tools in Data Science and Machine Learning
  - in an accessible manner and by promoting active learning
- Combining knowledge of fundamental concepts and techniques with specific applications
  - so that its graduates will be aptly skilled in today's and tomorrow's labor market

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HOU in numbers

4 Schools

77 Study Programs

56 # Faculty

~2000 # Adjunct Faculty

~25000 Students (active)

~100000 Graduates



https://www.youtube.com/watch?v=1NpjflviFo8

https://numbers.eap.gr/

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Open Universities & Distance Education

A Different Way to Learn

Distance Education

- Education without the classroom
- The students are free from the constraints of the time and the pace of study
- Independent and autonomous education:
  - Tutors will be accessible and supportive but they will give as much assistance as needed so that students can progress on their own

What is really important in Distance Education?

- The "**Communication**" with the Educational Material

- The **Communication** with the Tutor and the Fellow-Students
  - ✓Tutorial Meetings (a Tutor meets 10-25 Students, for 4 hours, 5 times/year)
  - ✓Forum (mostly between a Tutor and Students)
  - ✓E-mails (mostly, 1-1)
  - ✓Phone (mostly, 1-1)

What is the Role of the Tutor in DE?

The Tutor in DE:

- Is **accessible**, **supportive** but he/she gives as much assistance as needed so that students can progress **on their own**
- Monitors the students' progress in doing their individual tasks
- **Encourages autonomous** learning
- Offers to students **immediate, effective and personalized** guidance

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Why are the Tutorial Meetings very Important to attend?

The Tutorial meetings help you to:

- Solve problems in a team
- Feel part of a team with the same concerns and goals
- Develop your group skills
- Get to know your peers better
- Be prepared for your tasks and your final exam
- Clarify any concepts that you might not understand
- Practice presentations (public speaking)
- Continue your studies by giving you motivations

Key aspects of HOU Educational Methodology

- Up-front, timely provision of all material, study schedule and activities calendar
- Small student groups (20-25 students)
- Flexible, multi-faceted communication (group/personalized, synchronous/asynchronous, etc.)
- Evaluation and feedback

DAMA Modules (core, as of 2026-27)

DAMA501	**Linear Algebra and Calculus**	**(C, 15 ECTS)**
DAMA503	**Programming, Databases and Algorithms**	**(C, 15 ECTS)**
DAMA502	**Statistics and Optimization**	**(C, 15 ECTS)**
DAMA510	**Machine Learning**	**(C, 15 ECTS)**
DAMA600	**Mining of Massive Datasets**	**(C, 15 ECTS)**
DAMA610	**Deep Learning**	**(C, 15 ECTS)**

For the acquisition of the Master's Degree the successful attendance of the four compulsory course modules is required, for a total of 90 ECTS (1 ECTS = 25-30 hours).

After completing 90 ECTS, the student might also opt to attend:

DAMA700	**Applied Research and Development: Systems Practicum**	**(E, 15 ECTS)**

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DAMA Modules (flexible, as of 2026-27)

DAMA501	Linear Algebra and Calculus	(E, 15 ECTS)
DAMA503	**Programming, Databases and Algorithms**	**(C, 15 ECTS)**
DAMA502	Statistics and Optimization	(E, 15 ECTS)
DAMA510	**Machine Learning**	**(C, 15 ECTS)**
DAMA600	**Mining of Massive Datasets**	**(C, 15 ECTS)**
DAMA610	**Deep Learning**	**(C, 15 ECTS)**
DAMA700	Applied Research and Development: Systems Practicum	(E, 15 ECTS)

For the acquisition of the Master's Degree the successful attendance of the four compulsory course modules is required, for a total of 90 ECTS (1 ECTS = 25-30 hours).

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DAMA Modules (all compulsory, up to 2025-26)

First Year →	DAMA50 Mathematics for Machine Learning
First Year →	DAMA51 Foundations in Computer Science
Second Year →	DAMA60 Algorithmic Techniques and Systems for Data Science and Machine Learning
Second Year →	DAMA61 Numerical and Computational Techniques for Data Science and Machine Learning

For the acquisition of the Master's Degree the successful attendance of the four compulsory course modules is required, for a total of 120 ECTS (1 ECTS = 25-30 hours).

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Study Schedule (DAMA503 snapshot)

STUDY SCHEDULE:
(Code: Module Title)
WINTER SEMESTER OF ACADEMIC YEAR 2026-2027

SOFTWARE WEEKS	SEMESTER	STUDY WEEKS	STUDY DATES (FROM)	STUDY DATES (TO)	CHAPTERS	EDUCATIONAL ACTIVITIES (ex. Written Assignment, etc)	WEIGHT OF EDUCATIONAL ACTIVITIES	NON-GRADED EDUCATIONAL ACTIVITIES (ex. Quiz, etc)	GROUP COUNSELING MEETINGS (GCM)
1	WINTER SEMESTER	1	1/10/2026	4/10/2026	(LPtRW) Chapters 1-5				NO[1]
2		2	5/10/2026	11/10/2026	(LPtRW) Chapters 6-10 (ODS) Chapters 1-2				
3		3	12/10/2026	18/10/2026	(LPtRW) Chapters 11-13, 15-16, 20 (ODS) Chapters 3, 5 (PSP) Chapter 6.5				1st GCM
4		4	19/10/2026	25/10/2026	(PSP) Chapter 5 (ODS) Chapters 6-7, 10	Quiz1	5%		
5		5	26/10/2026	1/11/2026	(PSP) Chapter 6.1-6.4.1, 6.6-6.16				
6		6	2/11/2026	8/11/2026	(PSP) Chapter 7				2nd GCM
7		7	9/11/2026	15/11/2026	(PSP) Chapter 8	HW1	10%		
8		8	16/11/2026	22/11/2026	(RDBDaI) Chapter: 1-5				
9		9	23/11/2026	29/11/2026	(RDBDaI) Chapter: 8, 9, 11, 13-15 (LPtRW) Appendix B.4				
10		10	30/11/2026	6/12/2026	(RDBDaI) Chapter: 16-20	Quiz 2	5%		
11		11	7/12/2026	13/12/2026	(RDBDaI) Chapter: 24, 27, 28				3rd GCM
12		12	14/12/2026	20/12/2026	(NGDB) Chapters: 1-5	NO[2]	NO[2]		
13		-	21/12/2026	27/12/2026	CHRISTMAS HOLIDAYS[2]				
14		13	28/12/2026	3/1/2027	(NGDB) Chapters: 6, 7, 10 (only sections in "Data Model" until "Binary JSON (BSON)" (including)), 11	HW2	10%		NO[2]

ATTENTION:

In the following weeks or dates there will be no scheduled **GCMs**:

1. **1st Software Week** due to administrative processes
2. **13th and 14th Software Week** due to Christmas & New Year's Holidays

In the following weeks or dates there will be no scheduled **Educational Activities** (ex. Written Assignments, etc):

2. **12th and 13th Software Week** due to Christmas Holidays

Books:

1) Learn Python the Right Way (LPtRW) (https://dokumen.pub/learn-python-the-right-way-how-to-think-like-a-computer-scientist.html)
2) Open Data Structures, Edition 0.1Gβ (ODS) (https://open.umn.edu/opentextbooks/textbooks/171)
3) Problem Solving with Algorithms and Data Structures using Python, 2nd Edition (PSP) (https://runestone.academy/ns/books/published/pythonds/index.html)
4) Relational Database Design and Implementation (RDBDaI) (https://ebookcentral-proquest-com.proxy.eap.gr/lib/eapgr/detail.action?docID=535142&query=Relational%2520Database%2520D
5) Next Generation Databases NoSQLNewSQL, and Big Data (NGDB) (https://search-heal-link-gr.proxy.eap.gr/Record/978-1-4842-1329-2?sid=260162)

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Tutorial Meetings: Do not miss them!

(Code: Module Title)

WINTER SEMESTER OF ACADEMIC YEAR 2026-2027

SOFTWARE WEEKS	SEMESTER	STUDY WEEKS	STUDY DATES (FROM)	STUDY DATES (TO)	CHAPTERS	EDUCATIONAL ACTIVITIES (ex. Written Assignment, etc)	WEIGHT OF EDUCATIONAL ACTIVITIES	NON-GRADED EDUCATIONAL ACTIVITIES (ex. Quiz, etc)	GROUP COUNSELING MEETINGS (GCM)
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3		3	12/10/2026	18/10/2026	(LPtRW) Chapters 11-13, 15-16, 20 (ODS) Chapters 3, 5 (PSP) Chapter 6.5				1st GCM
4		4	19/10/2026	25/10/2026	(PSP) Chapter 5 (ODS) Chapters 6-7, 10	Quiz1	5%		
5		5	26/10/2026	1/11/2026	(PSP) Chapter 6.1, 6.4.1, 6.6, 6.16				
6		6	2/11/2026	8/11/2026	(PSP) Chapter 7				2nd GCM
7	WINTER SEMESTER	7	9/11/2026	15/11/2026	(PSP) Chapter 8	HW1	10%		
8		8	16/11/2026	22/11/2026	(RDBDal) Chapter: 1-5				
9		9	23/11/2026	29/11/2026	(RDBDal) Chapter: 8, 9, 11, 13-15 (LPtRW) Appendix B.4				

◄ Friday

Saturday, 17 October 2026

ΟΣΣ1 DAMA503-ΗΛΕ47 — Saturday, 17 October, 11:00 » 15:00

ΟΣΣ1 DAMA503-ΗΛΕ47

ΑΙΘΟΥΣΑ

[redacted]

DAMA 503: Programming, Databases and Algorithms

DAMA503-ΗΛΕ47

4) Relational Database Design and Implementation (RDBDal) (https://ebookcentral-proquest-com.proxy.eap.gr/lib/eapgr/detail.action?docID=535142&query=Relational%2520Database%2520D

5) Next Generation Databases NoSQLNewSQL, and Big Data (NGDB) (https://search-heal-link-gr.proxy.eap.gr/Record/978-1-4842-1329-2?sid=260162)

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2 or 3 Written Assignments (plus quizzes/activities)

Please pay attention:

- Do not leave the submission of your assignments to the last days or hours
- If the system crashes, you are part of the problem
- The confusion and stress is what you give to yourselves by submitting as late as you can
- The deadlines cannot be extended

How to calculate the total grade

The average of the written assignments	→	30% (or 40%) of the total grade
Final exam	→	70% (or 60%) of the total grade

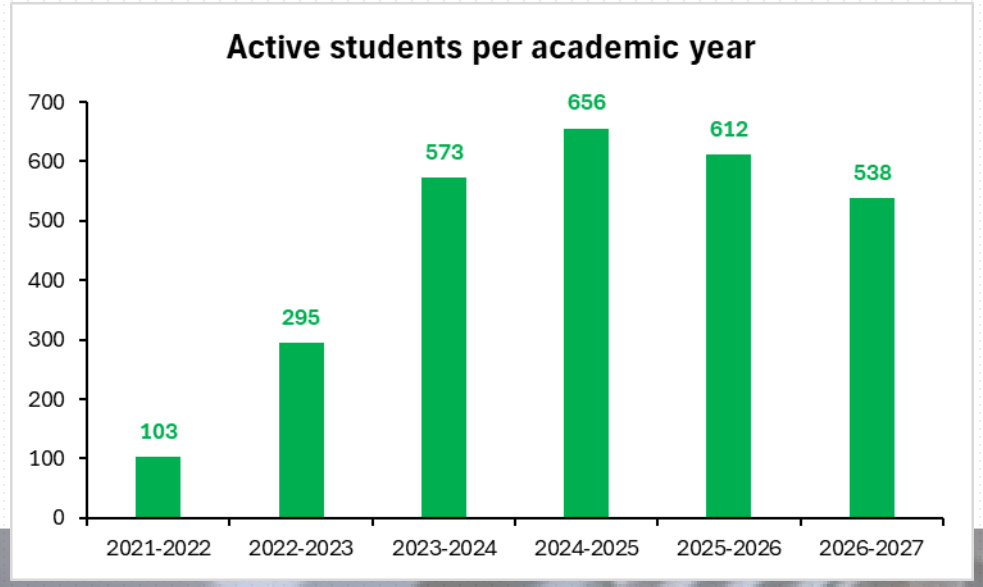
Pay Attention

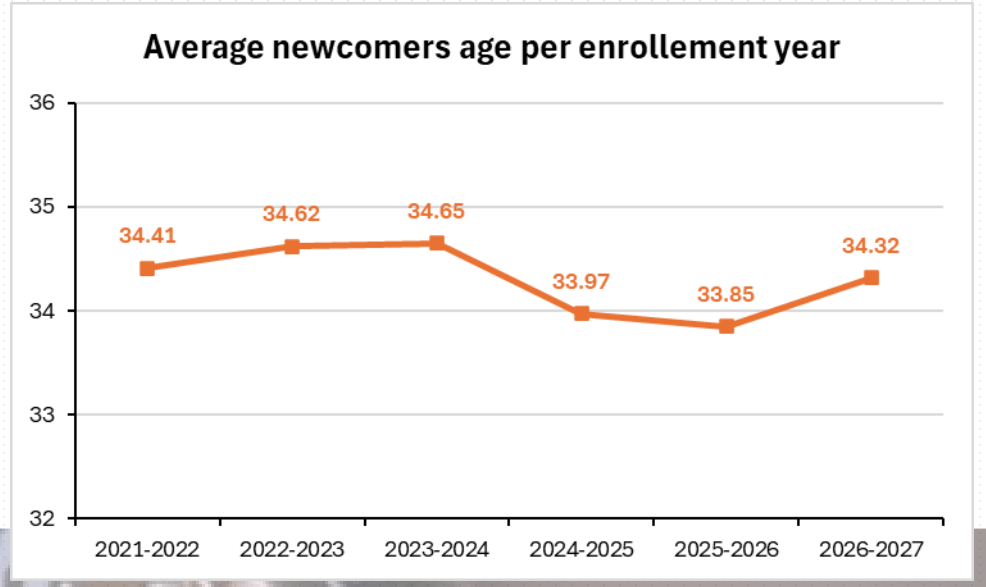
You cannot take the final exam if the average of the written assignments is lower than 5

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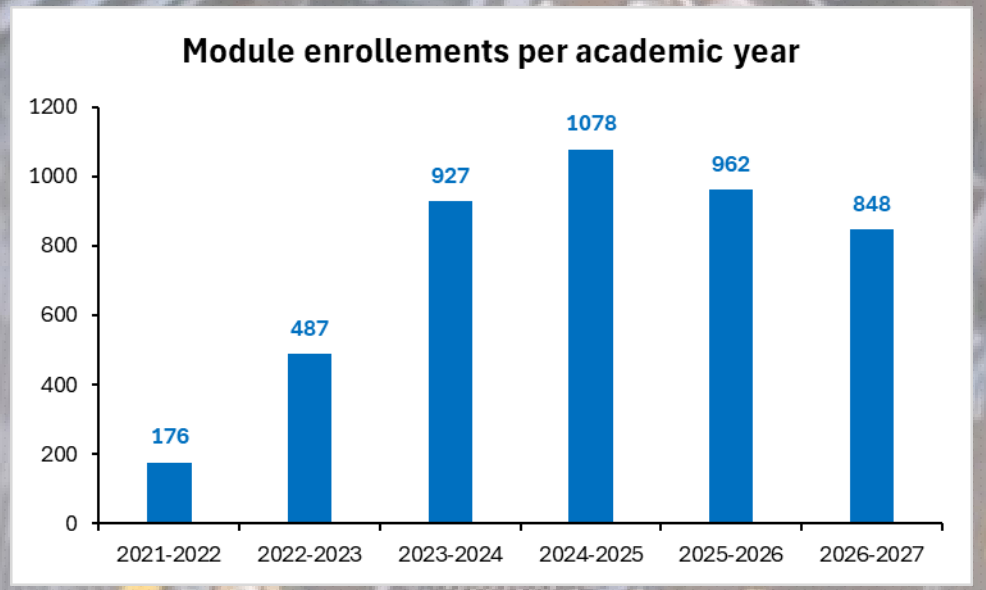
ΕΛΛΗΝΙΚΟ ΑΝΟΙΚΤΟ ΠΑΝΕΠΙΣΤΗΜΙΟ

Interesting statistics (DAMA)





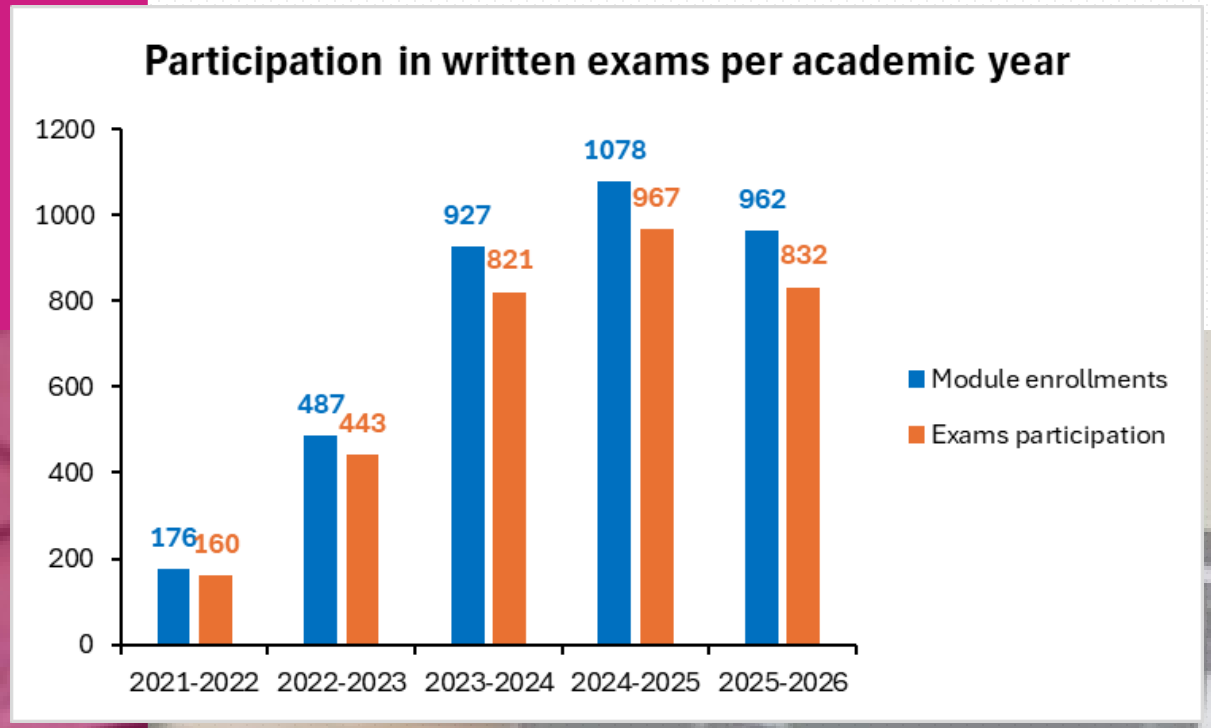
The figures are expected to change, as only the first semester of the 2026 –2027 academic year has been completed so far.

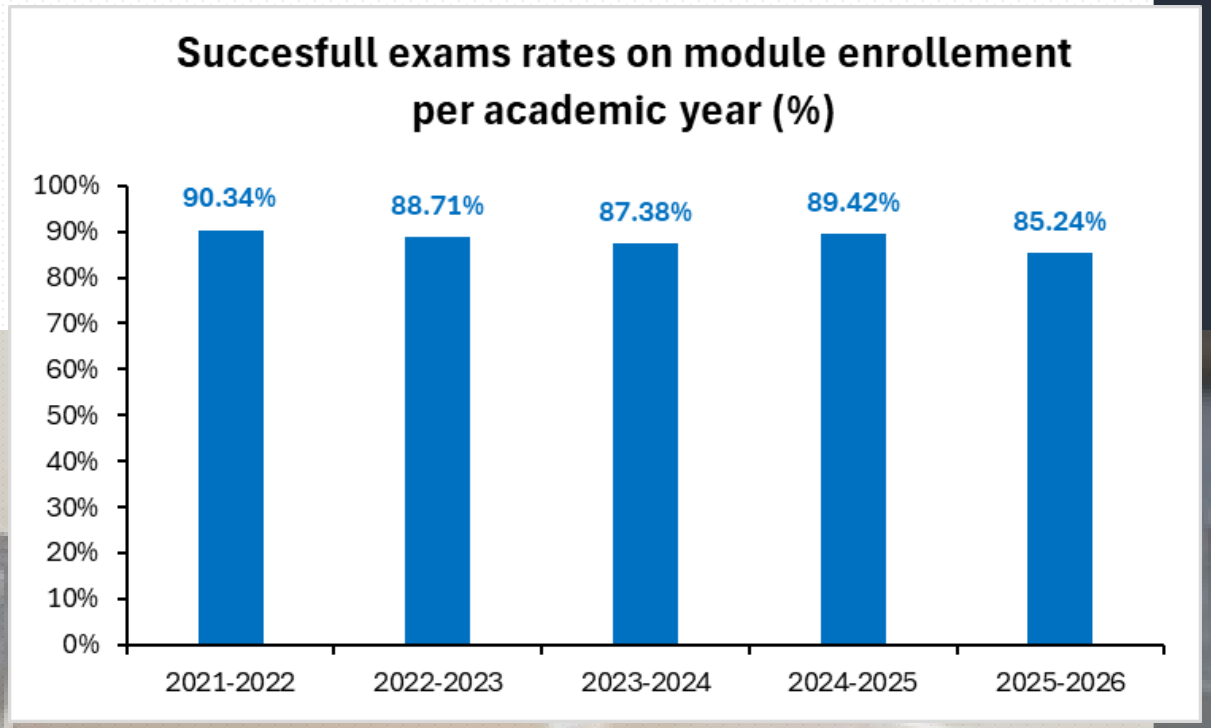


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Participation in written exams (DAMA)



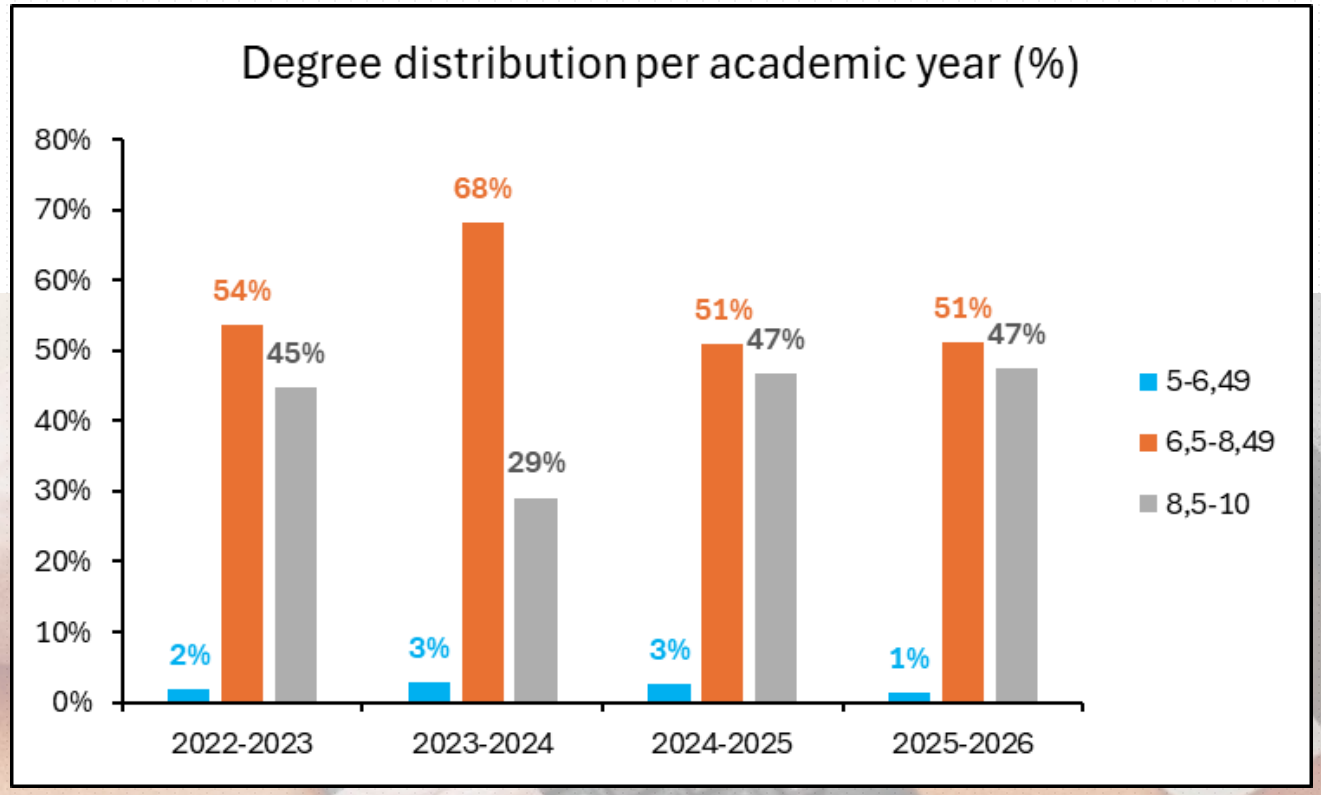


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Graduates (DAMA)

Average time to complete studies: 2,37 years
Up to now: 617 graduates
Average graduates' age: 36,24 years

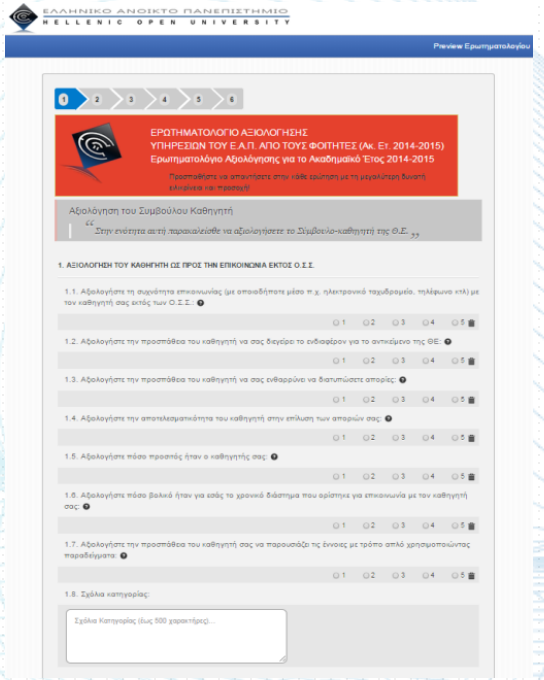


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Evaluation of DAMA

DAMA participates in external evaluations / certifications as defined from Hellenic Authority for Higher Education (HAHE)



- ✓ The programme is evaluated internally, annually, from students (participation over 50%) regarding:
  - Tutors
  - Educational material
  - Module Organization
  - Administrative services & Technical Services

- ✓ The evaluation is anonymous and voluntary and is performed through the completion of an electronic questionnaire.

Μονάδα Εσωτερικής Αξιολόγησης
ΕΛΛΗΝΙΚΟ ΑΝΟΙΚΤΟ ΠΑΝΕΠΙΣΤΗΜΙΟ

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When do we reach the module Coordinator and the Director of the program?

Tutor → **Module Coordinator** → **Program Director**

- Prior to the contact with the Module Coordinator, **extensive communication** has to be taken place with your Tutor on the matter.
- The Module Coordinator **is only to be reached** in case there was no satisfactory outcome.
- The Program Director should be contacted only if communication between you and the Module Coordinator, was not also fruitful.

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We can promise that we will provide a supportive instruction to all of you.

However, our dedication is expected to be matched by your willingness to put forth your best effort.

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Have a new academic year full of creativity!

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