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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

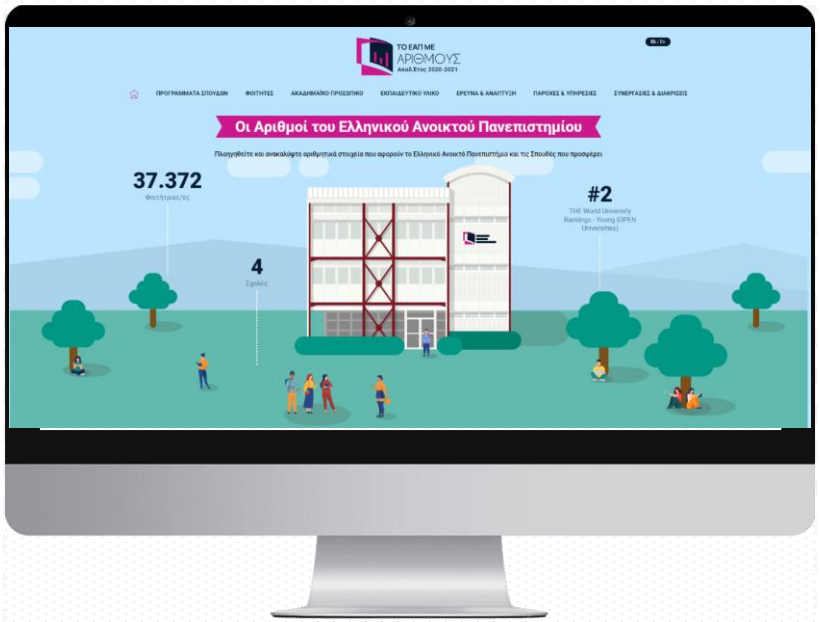
77 Study Programs

54 # Faculty

~2.500 # Adjunct Faculty

~28.500 Students

~92.000 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

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DAMA Modules (all compulsory)

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 (DAMA51 snapshot)

STUDY SCHEDULE DAMA 51 2024-25						
Study Weeks	Study Dates (From)	Study Dates (To)	Chapters from Book 1 [GtIDA]	Chapters from Book 2 [DSBDA] (or Book 3 [ItR]	Written Assign.	Tutorial Meetings
1	01/10/2024	06/10/2024	Chapter 1 - Introduction Chapter 2 - Practical Data Analysis: An Example Chapter 3 - Project Understanding			
2	07/10/2024	13/10/2024	Appendix A - Statistics, A1, A2	Chapter 1 - Introduction to Big Data Analytics		
3	14/10/2024	20/10/2024	Appendix A - Statistcs, A3	Chapter 2 - Data Analytics Lifecycle		Tutorial 1
4	21/10/2024	27/10/2024	Appendix A - Statistics, A4			
5	28/10/2024	03/11/2024	Appendix B - The R Project	Book 3 [ItR]		
6	04/11/2024	10/11/2024		Chapter 3 - Introduction to R		
7	11/11/2024	17/11/2024	*Appendix C - KNIME*	Chapter 3 - Exploratory Data Analysis		
8	18/11/2024	24/11/2024	Chapter 4 - Data Understanding I, 4.1, 4.2, 4.3, 4.3.1, 4.4, 4.5, 4.6, 4.7	Chapter 3 - Statistical Methods for Evaluation	HW1	
9	25/11/2024	01/12/2024	Chapter 4 - Data Understanding II, 4.3.2	*Chapter 11 - In-Database Analytics*		Tutorial 2
10	02/12/2024	08/12/2024	Chapter 4 - Data Understanding III 4.8			
11	09/12/2024	15/12/2024	Chapter 5 - Principles of Modeling I, 5.1, 5.2, 5.3			
12	16/12/2024	22/12/2024	Chapter 5 - Principles of Modeling II, 5.4, 5.5, 5.6			
13	23/12/2024	29/12/2024	CHRISTMAS HOLIDAYS			
14	30/12/2024	05/01/2025	Chapter 6 - Data Preparation			
15	06/01/2025	12/01/2025	Chapter 7 - Finding Patterns, 7.1 Hierarchical Clustering		HW2	
16	13/01/2025	19/01/2025	Chapter 7 - Finding Patterns, 7.2 Notion of (Dis-)Similarity			Tutorial 3
17	20/01/2025	26/01/2025	Chapter 7 - Finding Patterns, 7.3 Prototype-Based Clustering	Chapter 4 - Clustering		

Tutorial Meetings: Do not miss them!

DAMA51-HΛE41

Sun, 20 Oct 2024, 4:00 PM

Group event

ΟΣΣ1 DAMA51-HΛE41

ΑΙΘΟΥΣΑ

https://hou.webex.com/meet/kalles

DAMA51 - FOUNDATIONS IN COMPUTER SCIENCE

DAMA51-HΛE41

AMA 51 2024-25

Study Weeks	Stud (F		Chapters from Book 2 [DSBDA] (or Book 3 [ItR]	Written Assign.	Tutorial Meetings
1	01/1				
2	07/1		Chapter 1 - Introduction to [illegible]		
3	14/1		Chapter 2 - Data Analytics Lifecycle		Tutorial 1
4	21/1				
5	28/1		Book 3 [ItR]		
6	04/1		Chapter 3 - Introduction to R		
7	11/1		Chapter 3 - Exploratory Data Analysis		
8	18/1	4.5, 4.6, 4.7	Chapter 3 - Statistical Methods for Evaluation	HW1	
9	25/1		*Chapter 11 - In-Database Analytics*		Tutorial 2
10	02/1				
11	09/1				
12	16/1				
13	23/1	CHRISTMAS HOLIDAYS			
14	30/1				
15	06/0			HW2	
16	13/0	y			Tutorial 3
17	20/0	ring	Chapter 4 - Clustering		

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5 or 6 Written Assignments

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

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How to calculate the total grade

The average of the written assignments	→	30% of the total grade
Final exam	→	70% 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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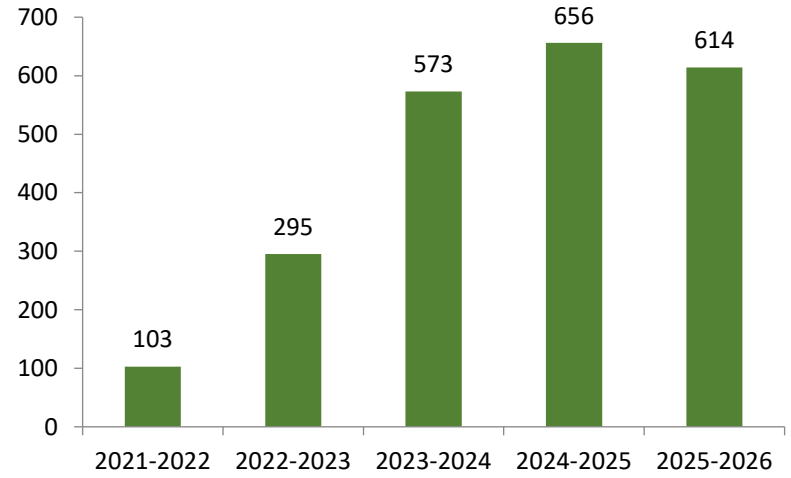
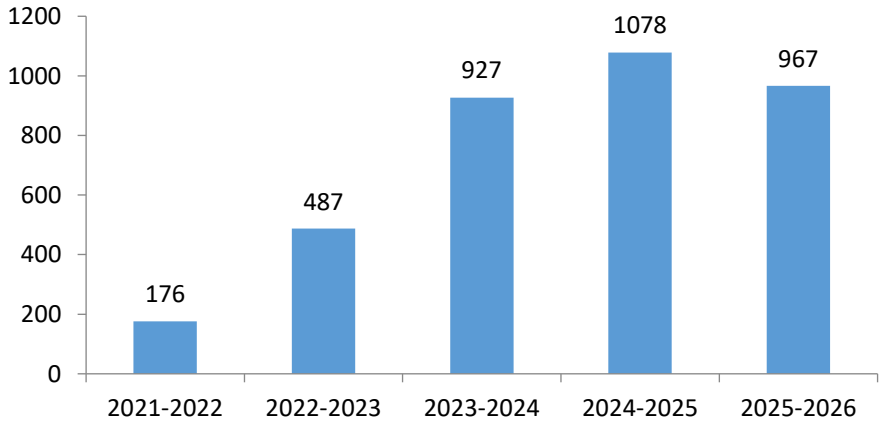
ΕΛΛΗΝΙΚΟ ΑΝΟΙΚΤΟ ΠΑΝΕΠΙΣΤΗΜΙΟ

Interesting statistics (DAMA)

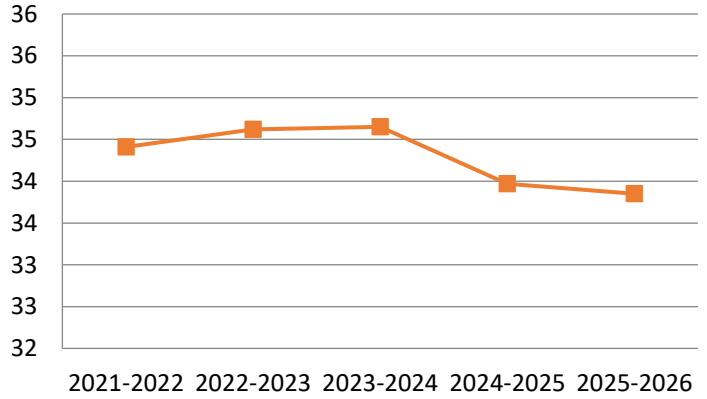
Active students per academic year



Number of Module enrollements per academic year



Average newcomers age per enrollement year



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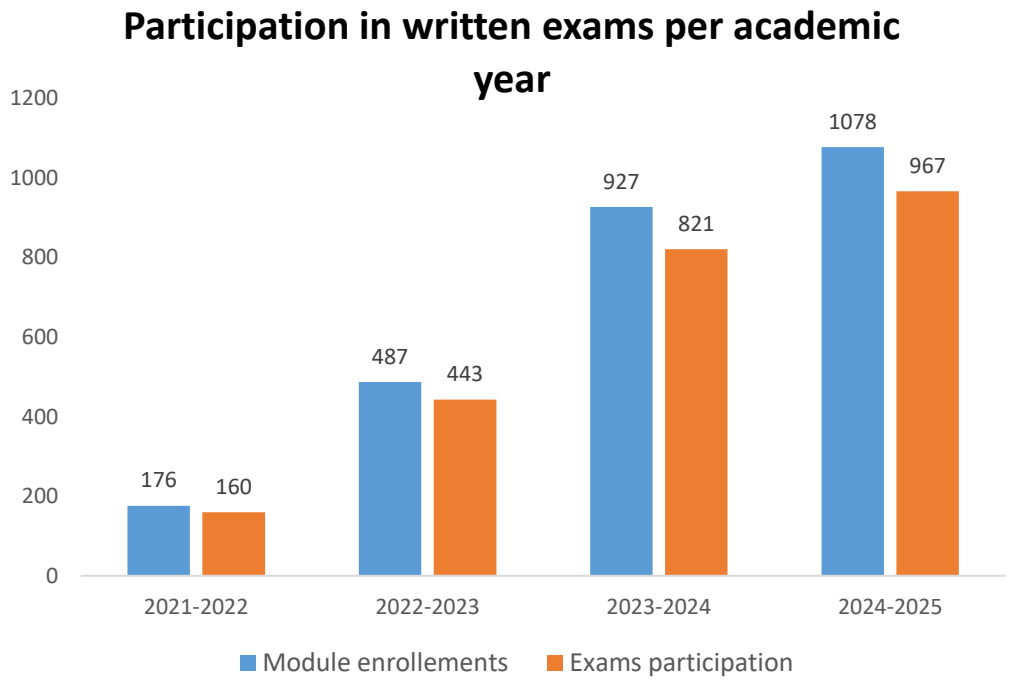
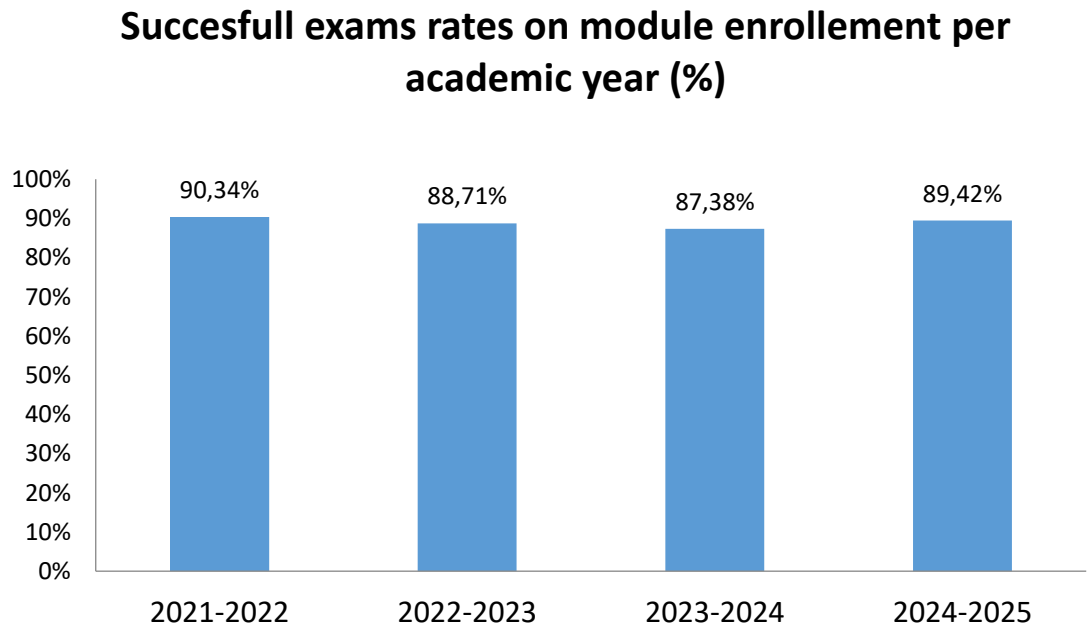
Participation in written exams (DAMA)





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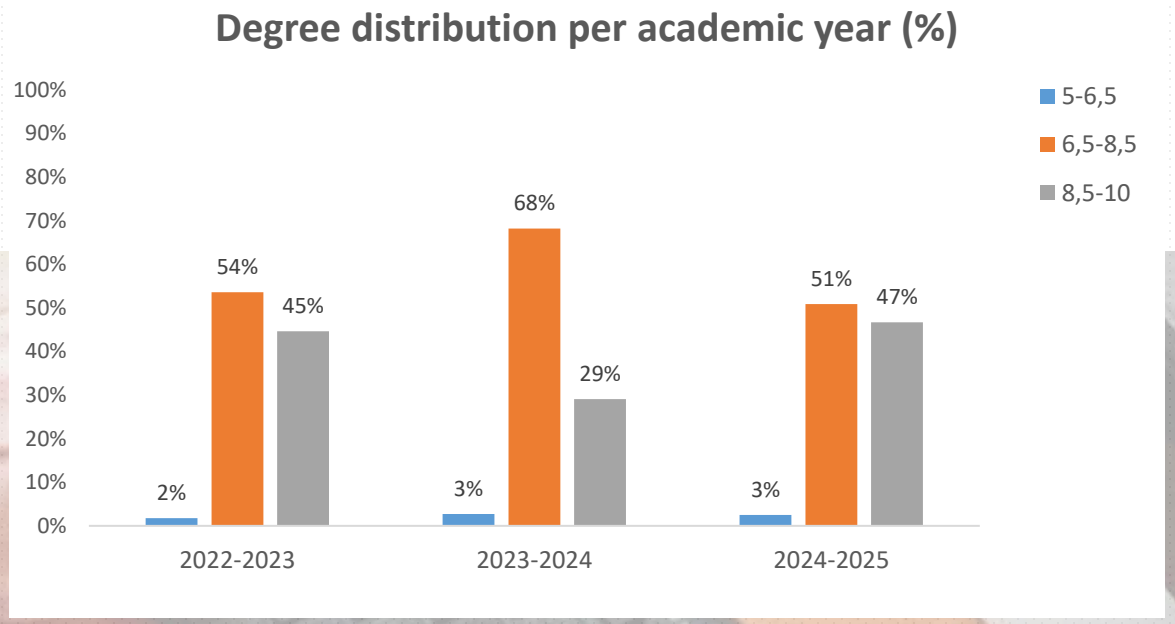
Graduates (DAMA)

Average time to complete studies: 2,21 years
Up to now: 404 graduates
Average graduates' age: 36 years



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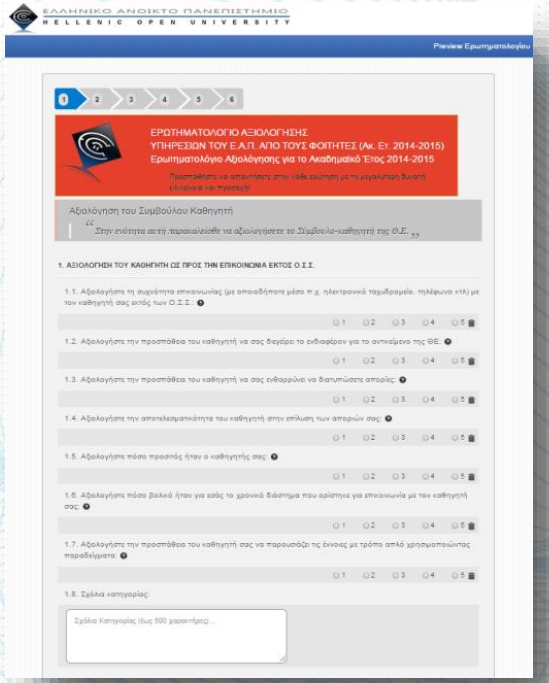
Evaluation of DAMA

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
  - Infrastructures
- ✓ 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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