DAMA so far; what the graduates say (30.10.2024)

Here are the comments we received from those graduates who responded (having deleted some points that refer to specific persons or to modules)

(philologist, 2023)

… Regarding the information you requested from me:

- In terms of how I studied, I didn't have a fixed schedule. If I had to notice a trend, I would say that I spent most of my study time on weekends (roughly 4 hours a day in total) and late at night on weekdays (1 hour in total for a single subject). This time mainly concerned the first access to the material (reading the basics of the recommended books). When assigning written assignments, reading was more intensive, with an average of 4 hours again on weekends but 3 hours on weekdays. The tutorials meeting , while they didn't offer me anything more than suggested books and the chaotic material available on the Internet, they did help me sort through (i.e. what's basic, what's detail, what's beyond the unit's goals), they made me to feel more confident and, along with the assignments, aligned me with my time commitments towards graduate school. I would say that I read more immediately after the tutorials meeting and, even more so, as the deadline for the written assignments approached.

- In terms of my study time relative to the estimated workload of each module, I would say that I studied on average (taking into account both slack and busy periods) 18 hours per week, with an average of 2 hours on weekdays and twice as much on weekends. If 1 ECTS equals 25 hours of workload, my eight-month study would be roughly 23 ECTS per subject (versus 30 ECTS of the estimated study). In my study I include the study of the recommended books, the study of the slides from the tutorials meeting , my practice by solving exercises from the suggested books or the Internet, solving the written assignments and studying material from the Internet.

- At the beginning of the program, my level of programming and mathematics in general was quite low. In my undergrad at … I had taken an elective course on "Speech and Natural Language Processing" from …, in which we dealt theoretically with Computational Linguistics algorithms and signal processing concepts, without learning to program. In 2019 (provided it was 2020) I happened to attend yet another free remote course by … on learning Python for non-programmers. I had not dealt with mathematics for many years, almost a decade, so my level was high school. With all this in mind, I felt weak and insecure about programming and math when I started DAMA. But I've been stubborn and I've learned that with hard work and a modicum of internal motivation (of any form: appetite, interest, passion, curiosity) pretty much anything can be tackled. Through DAMA I feel that I have improved significantly in terms of programming and somewhat less in terms of mathematics (although I am very satisfied with the goals of the program).

…

I didn't regret attending DAMA at all, I learned a lot about data science and machine learning, I can now follow many of the developments regarding artificial intelligence applications and I hope very soon to be able to apply them to my science as well. The passion, effort and care you put into the program comes out and I'm very happy about it.

I have no objection to my comments being used anonymously.

(forester, 2023)

… My first degree is in Forestry and the natural environment. I had also already done a master's degree at EAP on Environmental Design of Infrastructure Projects which I completed in 2019.

Because I always wanted to work professionally in the field of IT, I tried in every way to acquire knowledge, mainly of programming! ¨ when I applied to DAMA I already knew two programming languages, Python at an excellent level and

C++ at a good level. Machine 's space Learning interested me a lot so as soon as I saw this master's degree I applied! Regarding the time I spent in these two years of my DAMA studies, in the first year I had taken DAMA50 and DAMA51. Due to a lack of steady work, I spent somewhere around 30 hours per week for both modules to read and do the assignments correctly. The second year I took the other two modules DAMA 60 and DAMA 61 I was again devoting the same hours per week to both modules, even though I had now found steady work. ¨ regarding my knowledge on the subject I feel that I have improved it a lot, the material of the master's degree is very well structured and the use of the English language is a one-way street for this field because all the literature that exists or comes out every day is in the English language. …

(economics, 2023)

… Personally, I chose the program out of pure scientific interest. My background was economics and translation. My knowledge of mathematics was average but I think it was enough to understand the topics we were dealing with . Due to increased obligations (morning and afternoon work, family , etc.) - as happens with everyone I suppose - the hours I read were in the evenings or on Sundays. I find that there was no room for me not to engage at all on a weekly basis (I tried to read at least 1.5 hours per day). To clarify that I attended 2 modules in each year and this was quite stressful for me. The most difficult section for me was mathematics because although the professor made honorable efforts (the extra lectures helped a lot) the material seemed too long to me (but I think it couldn't be less because then the information and the understanding of the issues).

However, I have to emphasize that I was excited and fully satisfied by the PMS because I learned a lot regardless of whether I do not specialize in this particular field!! …

(administration, 2023)

… What I felt at the beginning of studying at DAMA in terms of the level of programming and mathematics, was this:

- In terms of programming, I had no prior experience and struggled immensely. I needed to spend a lot of time and hours of searching the internet with relevant information (codes, etc.) to be able to cope with the tasks. But gradually I improved and although my time was limited to non-existent (reading always took place in the evening hours due to work, family – three children …… etc.), I found it very interesting and did it with great pleasure. I felt very full of all this new knowledge. I can say that it captivated me.
- As for mathematics, there was some relevant background, but the fact that it had been a long time since the previous studies, as well as the fact that the level of mathematics we dealt with was (for me) very high, I struggled quite a bit, to the point of sometimes to cross my mind that I won't be able to cope, but finally with a lot of effort the result came. My level after the completion of the studies, I consider that it improved significantly in both subjects. With the guidance and encouragement of our professors, we managed to pull it off and build a very good background, which enables us to delve further and go one step further.

… Finally I have to say that it was an exciting experience and helped me expand my horizons a lot. Although I use a small part of what I have learned in my daily work, I continue to spend a lot of time indulging in various things and applications of this knowledge, having the advantage of doing it now only for pleasure and personal development, without the stress assignments or exams. I would like to have the opportunity to deal more actively with the specific subject because I really derive great satisfaction from dealing with it...

(mathematics, 2023):

... I am a Mathematician.

The DAMA program was quite demanding and of a high level. It required a lot of reading and engagement, especially for me who had no programming background. But it helped me a lot in getting better and developing.

The classes were quite helpful and the teachers were always there when needed. …

In general, as a Master's degree, it has nothing less than others that are done through life. I was quite pleased and recommend it, as well as others from EAP.

(polytechnic, 2023):

- Study: I started my master's degree while working full time. Therefore, I read mainly on weekends, and a few hours in the afternoons on weekdays. I can't tell you exactly, but I estimate that I spent an average of 15 hours a week on reading / exercises.
- Education level vs personal experience with programming and mathematics: Being a polytechnic graduate I had contact with mathematics. I did not feel that I struggled (without claiming to know everything) neither with Linear Algebra nor with Statistics. Regarding planning, I already had a contact on my own initiative (courses python , tutorial ... for ML applications, tutorials , etc.). Certainly through the DAMA curriculum I improved further, and the contact with the lecturers filled in some gaps in the theoretical background that might not have been covered by the material available online. …

(physics, 2023)

The study for the completion of the PMS DAMA, for me personally, was done in the evening after work and I can say that for each assignment that had to be submitted I needed 15-20 hours of study depending on the subjective difficulty of each assignment. The required time, I usually divided it into 7-14 days.

I consider my level of mathematics to be quite good due to my previous studies (Physicist), however I clearly developed in this field through DAMA.

Regarding programming, I can say that new horizons have opened up for me...

(cultural technology, 2023)

The subject of my studies concerned the promotion of cultural products using new technologies. My direction, in particular, concerned the part of highlighting and "engaging" the user using IT technologies, such as user experience , 3D graphics , Front End development etc. Also, during my studies, theoretical courses, such as highlighting cultural heritage, were combined with IT courses such as databases, object-oriented programming, etc. According to ASEP, the department is included in the Department of Informatics.

After completing my undergraduate studies, I completed my first master's program in Networks from the University of Piraeus.

From 2014 until today, I work as a developer (web applications , e- learning applications , search machine for flights , data visualization , computer science teacher, etc.). …

As you can tell, I was no stranger to programming, and even though I didn't know Python and R, I found it perfectly passable. As for the Maths topic, I approached it the same way I approach topics in my work, so I asked some colleagues in graduate school to explain the basic concepts to me at the very beginning. Then again, I can't say I had much trouble. Certainly some subjects related to Statistical science required some extra time, but it was not difficult. In any case, eg in the part of solving systems of equations, I approached it gradually, starting from the very basics to get to a higher level, eg why we need them and how to solve them easily.

As far as math is concerned, I think it helped me quite a bit to recall concepts that I had been struggling with for years. I can say that the Linear Algebra part seemed easier than the Statistics part, however the professor (whose name escapes me at the moment) ... was completely understandable to me and also able to help in case of questions. In this case, it was great to understand concepts of Statistics and be able to use them in my work as well.

In total during the 2 years it lasted, I spent time on weekends, about 12 hours in total. However, during the week, I tried to be active, reading the notes, reading articles, re-solving previous exercises, etc. Due to lack of time, whenever there was a delivery of work, the work was 60% ready as of the previous Saturday. During the exams, I would ask for leave a few days before to focus on reading .

I want to inform you that throughout my studies, in addition to my work, ... I learned foreign languages, as I live abroad and I need it, I changed projects , as well as other activities. What I did was I had specific time for each one. I had decided from the beginning that I would try my best, however since all of the above were of paramount importance, I had also decided that the best thing for me to do is to see the program as something I am interested in and learning from and not as an extra degree. In this however it helped quite a bit that as a professional programmer as well as by nature, I love learning and the whole process of it.

I can say about the program that … the majority of professors were there to help and guide me. However, for my part, it was not something I could do easily due to workload.

As a professional programmer, I saw something that I also saw in the previous master's degree, unfortunately, and that I can say that I also see in my workplace. Many times we know the theoreticals (algorithms, data structures, statistics, mathematics), but the majority cannot turn them into programming. I can say with certainty that I did not have such an issue, but I often saw it in colleagues as well. In this case, I would suggest implementing some extra course at the beginning of the program for programming, as well as some extra material. In such cases it is usually not so much that you learn as that there is the first contact with the object.

Overall, I'd say I didn't find it difficult. Especially the second year which only had Python but also the theoretical part which was about machine learning and algorithms etc. I found it particularly passable. … The most difficult, or rather demanding, part was that the delivery of the assignments coincided with the middle of the week.

For me the program acted as a gateway to understand some concepts better, as I was already working at Eurostat at that time and had just completed a project on data visualisation . …

(computer science, 2023)

First of all, I would like to mention that as a graduate of the Informatics Department of the Hellenic Open University, I had a complete understanding of distance education and what this entails both for the way of studying and the way of preparing assignments.

In the first year I took the 2 subject modules (DAMA 50, DAMA 51) with no prior knowledge of the DAMA 51 subject, unlike DAMA 50 where I had some basic knowledge from undergrad. I also had good programming knowledge (I knew Python , but not R). As a former EAP student and knowing the importance of the study schedule, I started the academic year with the goal of sticking to it (plus minus 2 weeks). I studied for about 1-2 hours, 4-5 days a week except when we had assignments deadlines where I might study a bit more. Around February I got a bit off schedule and fell behind, so I was running around handing in assignments (reading only for them) which I paid for in the end because I also had to catch up on the bits of material I had left over the course of the year . But in the end I did very well in the exams achieving averages above 8.5.

In the second year I took the next two modules (DAMA 60, DAMA 61) and I can say that it was more difficult for me to follow the program, not so much because of the study load but because of external circumstances. So mostly I was running around meeting deadlines with assignments and studying just for them. In the end I tried to cover the lost ground and in parts I succeeded as I did just as well in the exams, but with some cognitive gaps. In DAMA 61 I think

that even if you didn't have such a good knowledge of programming (and the Python language in particular) you could still follow because the book was really excellent. It was by far the best book I had in EAP.

In conclusion, my overall experience in the DAMA program has been very satisfactory. Initially it was the only ML program that was remote, and the fact that it was in English was an additional challenge that allowed me to brush up on the language. In addition, I feel that the curriculum covers to a large extent the basic knowledge and skills that one needs to have to work in industry in the field of IT or to progress one's studies to PhD level. Finally, all the professors I worked with were very cooperative and willing to share their knowledge with us. ... the curriculum is such that if one takes it seriously one acquires a very good knowledge background for the specific field.

(mathematics, 2023)

Due to professional and family obligations, I mainly studied in the evenings (21.00-23.30), with a high level assessment, I estimate approximately 160 hours per semester per subject (25 hours/month +10 hours in exams). Due to an academic background I didn't have much difficulty with math concepts or learning object oriented programming. I already knew R and had worked a bit with Python . However, I learned libraries and algorithms that I didn't know and that required extra effort . I definitely improved my perspective a lot and learned new methodologies since I have completed my studies several years ago.

Overall I found that the Program covers a wide range of ML and touches on AI topics. It also provides the resources to students so that they can immerse themselves in any field that interests them. The professors were willing to help and available for any question. …

(2024)

Regarding the study time and when I studied, I will be honest and let's sound exaggerated.

In my first year of math I spent 4-8 hours a day with few exceptions due to personal or professional commitments. The gap was wide and I struggled to cover it. In section 51 things were more passable although there the first contact with programming was not the easiest.

In the second year I realized that I have to work in advance. That is to say, I took out all the material that the professor would deliver to us in the next lesson as best as I could before our meeting, as a result of which I understood the concepts more easily during the delivery of the lessons, at the same time expressing all my questions. Having the previous experience with 2-3 hours on weekdays and about twice as much on weekends it was a more enjoyable academic year and more constructive I would say.

My knowledge of mathematics and programming before and after is in two words "night and day". DAMA opened up new horizons for me and mastering maths gave me confidence for anything new presented in front of me both professionally and academically. In terms of programming I gained the know-how on how to approach all kinds of languages/programs and not just DAMA.

… I report that I am extremely happy and justified for the choice I made to follow the program …

(economics, 2024)

Personally, in terms of studies, I come from the field of economics and in particular my bachelor's degree is in Accounting and Finance and my 1st master's degree in Auditing and Applied Accounting and of course my work is in this subject. Therefore, my contact with mathematics was mainly limited to basic concepts of statistics and with informatics purely at the level of personal research (books, internet, online courses etc.)

Of course I am sending you because I would also like to contribute in my way as much as I can to help future graduates of the program. So below are my general comments.

First, let me note that I chose to complete the program in the minimum duration, i.e. 2 years, covering both modules in each year, and I worked normally throughout the period of my studies.

Regarding the study hours, these were, if not daily, then every day at least 1-2 hours and certainly 4-6 hours per day on weekends. Of course, I think that there could be more in order to cognitively exceed the limits of the assignments. It goes without saying that the systematic reading with a program helped in the smooth and correct solution of the tasks.

As I mentioned before, my level of mathematical knowledge was limited to that of general education and basic knowledge acquired during higher education, while that of programming was that of personal effort with as much material as I could find in literature and the internet. It goes without saying that I consider myself to have improved in both areas since I would certainly not have been able to complete the program otherwise.

In closing, I would also like to mention as important the way one reads, as always either from the books or from the literature or from the limited previous level of those of us who did not come from a similar discipline, there would be some subject that we either did not know at all or would like to time to remember it. Therefore, I should say that a significant part of the time I devoted was to first understand what I did not understand (possibly also concepts that were not directly needed for the tasks) and then to proceed to the solution of the tasks even if this put a lot of pressure on their time limits.

Personally, maybe the only thing I can think of that maybe made it difficult for me was the bibliography in electronic format, although this was especially helpful since the language of the documents is in English and the translation of some terms or paragraphs was much faster and helped to immediately understand them .

(administration, 2024)

My studying took about two hours everyday, I mostly studied after work and on weekends. In the beginning, I felt that programming and mathematics were not my strong points, but over time, I believe that my knowledge has improved significantly. The professors were very helpful and this contributed to my growth.

Regarding my comments, I would like to suggest more meetings between students and professors, as well as more explanatory meetings. Perhaps it would be useful to cover more and more basic concepts, offering a more detailed explanation to make the program easier for graduate students to follow. Also, it would be useful if the material were shared more, as a large volume is covered in a short period of time. Additionally, it would be helpful to have more examples through the tools used.

Finally, my experience, although quite demanding, was good and I definitely feel very good to have been a part of the program.

(2024)

But I have been trained and placed in an IT position at my job. This results in me knowing programming specifically in python . So my sagemath was relatively easy with little study from the book.

The same for R.

I studied about 6-7 hours a week (for both modules - full time) in the afternoons with more emphasis on the weekend.

So about 3-3.5 hours per subject.

As for how, I was trying to follow the study schedule. That is, per week the appropriate pages - chapters. So I spent a lot of time reading the books, and if I didn't have time to study them thoroughly, I did at least one reading. Then I would read the tutorial notes and try to solve the assignments.

What I didn't like about most books e.g. mml -book (dama50) was that while there were exercises at the end of the chapter, I couldn't find the official solutions anywhere. Specifically, the official page referred you to request it by emailing Cambridge if I understood correctly.

Regarding the level of mathematics, I improved it by learning mathematics of a higher level than what I had been taught. But it helped me more that I was reading from mml book which is written in a purely mathematical way. (although I didn't understand everything)

I did not improve the programming level for the reason I mentioned above. But I came into contact with R, which I did not know.

I also learned the basics of the machine learning (tensorflow , sklearn etc) which was unknown to me. …

(medical device technology, 2024)

I am a graduate of Medical Instrument Technology from the School of Technological Applications of A.TE.I. of Athens (now Biomedical Engineering of the University of West Attica). …

My interest in Data Science and Machine Learning arose years ago while working on my PhD thesis on: "Identification of Sleep Spindles in digital EEG using a Probabilistic Neural Network in Matlab " under the supervision of …

When a colleague informed me about the existence of the specific study program I simply joined without hesitation since the field is already developing rapidly in the context of Biomedicine .

The first few weeks of study were frustrating given my long absence from academia. However with persistence, the situation improved. The biggest challenge in the field of study was time management. My job involves frequent trips to the territory with little ability to plan ahead. The proposed study program was impossible to follow. I completed my studies in any spare time I could take advantage of. There was no lack of times when I had to participate in SSO on the move on the National Highway or study in a hotel room after a hard day. The total study time in no case exceeded a quarter of the recommended time.

The participation in the SSOs was of great importance both because they offered a repetition of the educational material and for the excellent explanations of the teachers.

This particular curriculum was my first exposure to R and Python . My last contact with programming in general was way back in 2004 for lab classes in Matlab and C. I started with some difficulties but with the recommended books I quickly found my stride and I definitely feel significantly more comfortable using R and Python since day one when I started using them.

Mathematics - in some subjects - was a challenge for someone like me who had not practiced it systematically for about two decades. The approach of the professors and their willingness to answer questions, however, was instrumental in cementing that it is another tool in Data Science and Machine Learning. …

(biology, 2024)

First of all I would like to congratulate you overall for the excellent program you have put together, as well as for the choice of teachers.

The effort and diligence in developing this program is evident from the start, as well as the importance you place on proper learning through the distance model of the EAP.

About the study approach. I will begin the analysis with the assumption that one of the sciences I served, genetics, taught me. So the takeaway is that even though all humans are genetically governed by the same rules...they are all genetically unique!

So, the way I studied is unique to me but I will try to list the rules that I believe everyone should follow in order to get a proper result.

1. Conscious participation in the program and thirst for learning. If someone starts the program without a specific purpose and real interest, they probably won't be able to complete it. If he does it e.g. because machine learning and AI is "fad" and not because he really wants to learn, he will get tired and fail. Even if he does it to gain a position in the company he works for or to get a promotion he still might not succeed if he really doesn't like the subject. In my case, not only did I like the subject, when the program ended I was very sad! I enjoyed it so much that I missed it afterwards. Personally, I did it in part to try to change my career path in the pharmaceutical industry, but I did it knowing that I would really enjoy it and use some skills I've acquired over the years (more on that below) due to a personal search.

2. Daily study (as much as anyone can at any time of the day, but daily). It can be 1 hour but it is important that it is daily. What helped me was to set a goal every day to learn in a sense too, e.g. "what is dot product " for mathematics or "what is PCA" for the part of algorithms. Of course, keeping up with the material. Most of the time I combined it with practical application of what I learned, on the assignment we had to hand in. This is where the issue of diversity. Where does a worker with a small child (my daughter was 2 years old when I started the program) find even 1 hour daily? "night bird" I used to read "after the daily routine". That is, after work, time with the child, time with my wife, etc. Usually after 11 at night and I would "pull" it until 1 or 2 in the morning. To fit reading into your daily life you have to sacrifice something. I sacrificed my sleep for 2 years me) 4 hours. But that's how I sleep in general. Someone who is a " morning guy" could wake up an hour or two earlier to read e.g. And there is also the part of doing the program because you really like it. If you don't really like it, you won't sacrifice anything, or if you do, it will be too tiring.

3. Study from multiple sources. I really realized during the program how privileged the new generations are! With the huge amount of information that exists on the internet today I would jokingly say that one can become a neurosurgeon by watching YouTube videos ! Picking the most important ones that helped me, I quote the following list:

o Lecture presentations. Indeed, and for that, congratulations. One of the densest and at the same time simpler and easier to understand that could be made. They gave us exactly the information we needed. As much as was enough to understand each concept we had to learn. Combined with additional information from another source, they led to a deeper understanding. If I were to give one feedback in relation to their management on your part, it would be to distribute them before each meeting. So that the student has time to process them and have any questions ready during the meeting.

o YouTube . By far the most useful tool. There are some channels that are actually worth paying for their content. Connecting it with the above, during the day (during breaks from work, eating, etc.), I collected useful videos for a topic/concept that I would tackle in the evening. Many times I didn't study in the traditional way I just watched videos in bed before going to sleep. Some of the channels (you probably know them but I am listing them because they are really very useful):

- 3Blue1Brown (@3blue1brown) --> Incredible work
- StatQuest with Josh Starmer (@statquest) --> Whatever anyone says is little!
- The Organic Chemistry Tutor (@TheOrganicChemistryTutor) --> Very good for math. Excellent examples
- Jbstatistics (@jbstatistics) --> The channel by Jeremy Balka
- Artificial Intelligence - All in One (@ArtificialIntelligenceAllinOne) --> Almost all the DAMA60 in video ! With the videos of the authors of the recommended book from Stanford
- Mahesh Huddar (@MaheshHuddar) --> very good example exercises for understanding algorithms
- Ritvikmath (@ritvikmath) --> Very good for explaining maths and more

- Rob Mulla (@robmulla) --> Very good for practice through examples from Kaggle
- Greg Hogg (@greghogg) --> Also very good practical examples

o Medium (www.medium.com). Especially the TowardsDataScience channel . In the first year I skimped on the membership and settled for public only access articles. The second year I made a subscription and I believe it is one of the best money I have given in my life! Of course I still have the subscription and of course I continue to read every day every article related to data science i can As far as I can see, unfortunately there are no student discounts for Greece yet (https://help.medium.com/hc/en-us/articles/12846216085143-Redeeming-student-discounts) but why not? You could make a contact like a university. A discounted subscription from the university would really make a difference. You could also select articles to share as a list for students.

o " Networking " with fellow students. Very important and if I could suggest something in the existing context, I would say to do it with your help. I think the forum is not enough. Maybe with some special directory with phone numbers, mails (of course anyone who wants to share them), maybe an official discord server where the students will be able to meet and - of course if there is the possibility - every day or less often, one of the professors (or some graduate student(s)) will come in and accept questions. I know it's done in other distance learning programs and I really think it offers a lot. Especially if we are talking about graduate students/assistants, it also gives them experience. If there are no graduate students, you could volunteer the sophomores to the freshmen. And to the sophomores…some graduates! I personally wouldn't mind offering help (as much as I can) one hour a week e.g. Voluntarily and without pay, of course. In this part, I was very lucky because from very early in the program I met online with three other fellow students and we "stuck" as they say. In parts where I wanted help (e.g. math) they helped me and in parts they wanted (e.g. programming) I helped them. We exchanged notes, resources (eg a good video or article) etc. The good thing was that we all had the same logic (eg we worked on the tasks at the same time and helped each other but did not copy). We were trying to go deeper based on work. Sometimes when we didn't agree, we even placed bets! We each put our own solution and waited to see which one will be the right one in the end! What we had in common was that everyone really liked the subject and we tried to learn everything as well as possible. The other good thing about this group was that we were all from different backgrounds , a civil engineer, a molecular biologist, an economist, a mathematician and a mechanical engineer. We still talk on a daily basis and look for projects (e.g. on Kaggle) to apply what we have learned. Even startup ideas have fallen on the table.

As you will see...I left out the books! I really think that books these days are just another source for someone to refer to and find some detail. And perhaps an initial stimulus (if one faithfully follows the program of matter). Which stimulus, however, as I said before , you give (and with the above) with your very good presentations. The rest of the knowledge can be obtained from multiple sources, as long as one engages and searches with proper judgment. And in this (in the right judgment) you can also contribute by guiding them to worthy sources. Not that you didn't do it (I remember some links to youtube channels) but maybe it needs to be done more extensively. …

So in the part of the proposed study and its time planning, I would suggest that you don't just put the chapters from the suggested books, but the concepts that one has to cover in the specific time period. With sources both from the book and outside.

The study part includes the various "tools" that help a lot. I am listing these as well because they may help the students as well as you (e.g. in correcting assignments).

But before I list them...an extra tips ! All "tools" should be cloud based . So that the student can have the information and be able to study even from his mobile phone, in his very busy everyday life (most students of the EAP are working if I'm not mistaken).

1. Notion (www.notion.so): One of the best online markdown editors / “ mind-maps ” that exist. I used it to keep notes, useful links , etc. My fellow students (the group I mentioned above) and I shared notes with it. And all for free account (you can share files with 4 others if I'm not mistaken, that is 5 collaborators / free account). (p.s. these lines of text are written in Notion !). The texts can be extracted in many formats and certainly in PDF. Among its "pluses" is the fact that the user learns markdown , which as we know in a jupyter notebook will need it to write nice and correct text.

2. Cloud storage : Whatever everyone prefers. I had all the DAMA material uploaded to my personal google cloud . I have paid account of 100Gb (20 Euro/year) and it is more than enough to carry all important documents with me. I could refer back and work on whatever I wanted from anywhere, even from my cell phone.

3. Mathcha (www.mathcha.io): Online LaTeX and mathematics editor. It is completely free and in fact for "fast work" you don't even need an account. Much more user friendly friendly from overleaf (it's practically a wysiwyg LaTeX editor , so you're not writing LaTeX), and produces excellent quality output. I did all the 50's math assignments with it and I hope my teachers appreciated it too because I didn't "take their eyes off" correcting manuscripts. And since I said about manuscripts (…I'm going to be a bit mean now), I would suggest not allowing them anywhere. If nothing else, data scientist with his computer does what he does. If he writes reports and analyzes by hand because he doesn't know how to handle it well, something was wrong with his choice.

4. Google Colab : I think it needs no more recommendations (you recommend it too). It goes without saying that students should know how to set up their "lab" locally on their computer (python virtual environment , pip , jupyter notebook server or jupyterlab server etc.) but it helps if you have to continue work "on the go ". In conjunction with google drive you can do the work from anywhere.

At this point, I think it's time to answer your question about how I initially felt about my level in the main subjects of the master's degree (math, programming).

Initially, as I said, this master's degree was something I really liked and I knew what difficulties I would face.

My math was at a high school level. As a sophomore , I "left" in the middle of the 3rd high school because the "core" teacher (as you remember the mathematics for sophomores was outside of the core courses, in the "core" courses), in the middle of the year he told us that he would give us about the subjects for the final exams and in his class we read biology or physics or chemistry for the Panhellenic exams...but not maths! I remember he teased me because I liked math and I was good at it. To understand my level, I knew integrals until graduate school to be "some mathematical technique". I had never been taught them...I never needed them in my studies...I had never seen them. I had a bit of the central idea but from personal research (...you know the 10 minutes on google). Linear algebra too…pretty much nothing.

I note here that I have not done undergraduate studies in a Greek university, in the first year of which I might have done mathematics. I did my first degree and first Master's degree in England.

As you can understand, I knew that DAMA50 would be difficult for me, but it was also my bet to complete the master's degree. I thought that if I did well in this class, the rest would come relatively easily.

And being prepared "for the worst" it went much better than expected and I didn't struggle as much as I expected. But this had to do with many factors. I am listing them to help any future prospective students with the same handicap as me. Especially for DAMA50:

1. Good foundation in math: As I said, although I had left it in high school, I was also good but more importantly, I liked it. And I had what they call "good foundations" or I had caught "mathematical thinking". I believe that a candidate with little foundation in mathematics will be able to adequately learn what is needed. And if he doesn't have them, if he really wants it and tries, he will succeed. And there we come to the following.

2. A lot of study: Before I even started graduate school, I knew that I would have to put a lot more effort into DAMA50 than another candidate who had retaught the material and was just going to do a repeat. My main concern initially was to "get the logic" behind each concept/process. Once I understood the main idea, I tried to practice with exercises. I had the "tools" to solve the exercises (e.g. basic algebra, basic mathematical concepts, etc.). I just had to put the "puzzle" together and put the pieces in place. Of course this required a lot more time than someone who even knew the basic idea behind everything. Over time, my brain seems to have woken up and entered "math mode ". Things that seemed very difficult to me at first, such as reading and understanding a condensed mathematical formula (to my own untrained eye it seemed like a mountain to understand), became easier over time. So in the end, I reached the stage I wanted from the beginning. Be able to connect the concepts of DAMA51 with those of DAMA50. That was

the point for me from the beginning. How the math I'm learning applies to algorithms and machine learning techniques. Why e.g. we learn about orthogonal eigenvectors ? Why are they applied to PCA? …

3. Teachers: Maybe I should put it first and capitalize it. Really congratulations again for the choice of teachers and for their behavior towards us who were perhaps not at the average level. And I say this knowing that I wasn't just lucky to have her as a professor ... I also learned from other departments that they were just as good. The ... but it really helped with the above, that we all reach the same level. Advice to a candidate: seek contact with professors. When he needs help he asks for it. …

(medical device technology, 2024)

Having a technology background in medical device technology, I did find some parts of the curriculum challenging. I would say that I found the mathematics of the first year (DAMA 50) particularly difficult. The subjects that had to do with programming seemed less difficult to me.

As for the study, I used mostly the notes and presentations of the group counseling meetings and internet research and less the books. I would say that the Guide that Intelligent Data Analysis for DAMA 51 and particularly the Hands - On Machine Learning for DAMA 61 were the most useful books for me.

The hours of study were certainly less than recommended, but due to the nature of the work and the flexible schedule I cannot determine exactly how many were during the week. There was a greater load on weekends. On average, the study took place 3 to 5 days during the week. In any case, the maximum daily study time did not exceed 5, maybe 6 hours. Three to four weeks before the exams I tried to study systematically for 2 to 3 hours every day. I did not use time off from work to study for exams.

Finally, I would like to comment that the study and the whole effort was based on the preparation of the assignments. It is much easier for a working person to have clear goals with specific deadlines. I found the content of the assignments very interesting, but also completely relevant to the notes and presentations. Without the assignments, I doubt I would have been able to follow the schedule.

PS … some notebooks I made, either writing or collecting and modifying code while studying before final exams. I have tried to include all possible exam topics. This process helped me immensely in understanding and revising the material and I would like to mention this as an important observation.

(2024)

As far as studying goes, I personally spent a little time whenever I found it available during the weekdays, while putting more emphasis on the bulk of reading during the weekends.

Certainly the beginning of the master's degree was quite difficult due to the fact that I came from a different study environment, nevertheless with enough effort and targeted reading mainly from the sources shared with us by our professors as well as from various sources on the internet, I managed to enter the sense I consider early.

In terms of programming, when I started I was at a beginner level, while towards the end of the master's degree I confess that I saw very big differences both in identifying and solving problems/errors, and in the time it took me to understand the reasoning behind each problem. I consider that I have now reached a fairly satisfactory level, which certainly always needs further improvement!

Regarding mathematics I was at a fairly high level before I even started graduate school because of both my profession (it involves quite a bit of mathematics even though it is not widely known) and also because of my personal inclination towards the field of mathematics. I think that with the end of the master's degree I maintained this level.

… I personally found the weekly "reading plans" that the teachers shared with us very helpful.