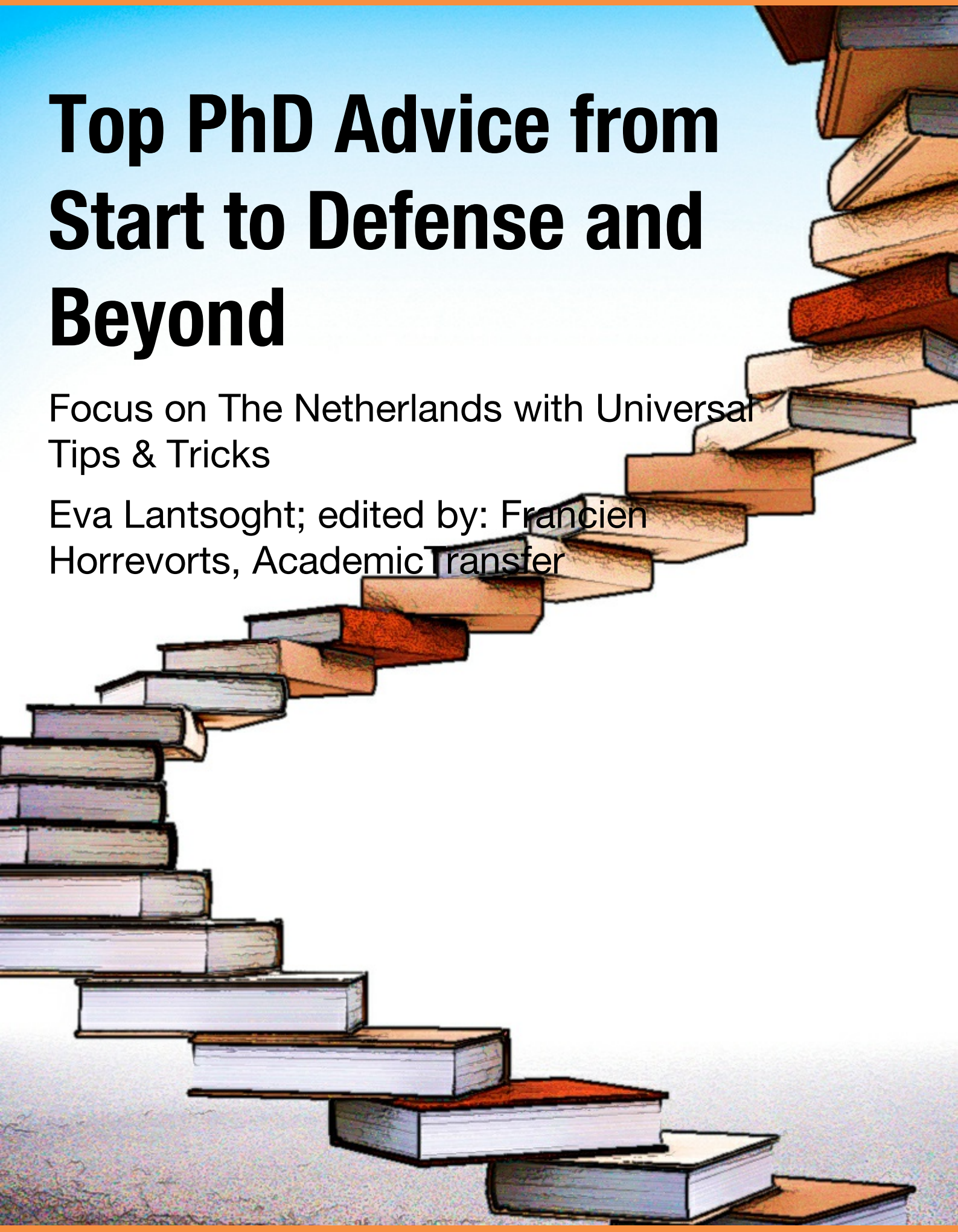
Top PhD Advice from Start to Defense and Beyond

Focus on The Netherlands with Universal Tips & Tricks

Eva Lantsoght; edited by: Francien Horrevorts, AcademicTransfer



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EVA LANTSOGHT

TOP PHD ADVICE FROM START TO DEFENSE AND BEYOND

FOCUS ON THE NETHERLANDS WITH UNIVERSAL TIPS & TRICKS

Top PhD Advice from Start to Defense and Beyond:
Focus on The Netherlands with Universal Tips & Tricks
1st edition

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1 INTRODUCTION

Ever wondered about a career in academia? Or could you use some advice to successfully carry out your PhD research or your career after obtaining your doctorate degree? AcademicTransfer and Eva Lantsoght are glad to help you through this useful eBook!

AcademicTransfer is a career platform for those who would like to start or develop their career in science or academia in the Netherlands. This platform publishes all the current vacancies that Dutch research universities, university medical centers and research institutes have to offer. You will find many fully paid (!) PhD positions, as in the Netherlands a PhD candidate is a paid employee rather than a student. But you will also find vacancies for researchers, assistant professors, professors or post docs – whatever suits you best.

AcademicTransfer's visitors primarily visit the website to check these vacancies. However, they have also indicated that they would like to find additional information on the website, such as information about a career as a PhD candidate or about living, working and the scientific landscape in the Netherlands. AcademicTransfer has taken these wishes to heart!

In order to meet the first wish, a couple of years ago Eva Lantsoght started writing the "PhDTalk" blog posts for AcademicTransfer. After finishing her PhD in the Netherlands, Eva developed her academic career in both Ecuador and the Netherlands.

All career matters are addressed, varying from the orientation towards a PhD position to a PhD candidate's daily life and life as an academic after successfully obtaining a doctorate. AcademicTransfer is happy to share these blog posts with her visitors.

As for meeting the second wish, more information about life and academia in the Netherlands, AcademicTransfer has developed FactCards.nl. This portal provides all the information you need if you are thinking about a career in the Netherlands. For instance, you will find an explanation about the unique Dutch PhD system, the high rankings of all Dutch research universities or what you need to arrange to travel to and settle in the Netherlands. Useful, isn't it?

AcademicTransfer and Eva Lantsoght have combined forces once again and proudly present this eBook to you! It is full of all kinds of facts, tips and advice about a successful career in science or academia, specifically in the Netherlands.

Curious to find out more? Wait no longer and enjoy reading this eBook!

AcademicTransfer & Eva Lantsoght

2 ABOUT THE AUTHOR: EVA LANTSOGHT

Eva Lantsoght completed her engineering degree in civil engineering at the Vrije Universiteit Brussels. She then went on to Georgia Tech for a MS in structural engineering with a Fulbright scholarship and a Belgian American Educational Foundation scholarship. She started blogging when she was a PhD candidate at Delft University of Technology in the Concrete Structures department. She received her PhD Degree in June 2013. She is now an Assistant Professor at Universidad San Francisco de Quito (Ecuador) and a part-time researcher at Delft University of Technology.

Read Eva Lantsoght's introduction to the PhDTalks:

https://www.academictransfer.com/phdtalk/introducing-phdtalk-for-academictransfer

Contact about this publication: factcards@academictransfer.com

3 FOCUS ON THE NETHERLANDS

In this chapter you will find some more information about the Netherlands. You will learn more about various subjects. We will give some tips or more specific information about the Netherlands and the Dutch people but also some information about practical things and documents that need to be arranged if you want to move to and work in the Netherlands. First Eva will introduce twenty very useful things to know.

3.1 TWENTY THINGS ABOUT THE NETHERLANDS

1. **Gratis**
   First Dutch word to learn! "Gratis" means "free", and you will see it in many supermarkets: 10% gratis, 1+1 gratis, etc.

2. **Bikes**
   A bike is a useful and necessary means of transportation. Many people in the Netherlands bike their commute, and you surely should consider joining them after moving – by the time you reach the office, you've had some exercise, and you'll feel refreshed and ready to start the day. Don't bike too slowly though, you'd be a bottleneck in the traffic.

   Who needs a car if you can bike your commute? When you live in The Netherlands, one of the first things you need to look for is a decent bike. Your bike doesn't need to be a shining new one, but you do want to have a bike that is right in size for you, and that has some gears to help you bike up hills/bridges. Get yourself some bike bags to transport your groceries on your bike, and you're ready to go!

3. **University buildings have closing times**
   Unlike in the United States where most university buildings are open 24/7 if you have door access, Dutch universities and laboratories typically have closing times for safety reasons. Don't try to break into the building on a Sunday, or stay in the evening past closing time…the guards will find you.

4. **Start looking for housing early on**
   Finding affordable housing in the Netherlands can be quite challenging, so start looking for housing as soon as you can.

5. **The Dutch are not misers, but they use their resources wisely**
   What I appreciate a lot about the Dutch is that they use their resources wisely. In their neighboring countries, this might be seen as being stingy, but in reality they are not misers (and donating much more to charity than the Flemish!). As compared to Ecuador, I see much less excessive wealth in the Netherlands (luxury cars, houses with tons of antiques). They do exist, and there are super wealthy neighborhoods in the Netherlands, but most people are not big fans of excessive spending on material goods. It must be the Calvinist spirit…

6. **Bread makes a meal**
   Take two slices of bread and put something in between (ham, cheese, spreads). Repeat a number of times and you have a meal. Whenever you are busy, you can even have three of these meals in a given day.

7. **No authoritarian systems**
   At work, the Dutch treat each other as equals. The team leader will coordinate how you work together but will not be an imposing boss. Other countries might have clear systems of who has authority over whom and to whom you need to ask permission, but in the Netherlands I've been surprised many times by the confidence my senior co-workers put in me and how they trusted me with certain tasks without asking me to constantly report to them.

8. **Everyone is heard during a meeting**
   Whether they are junior or senior members of a team, everybody has a say in a meeting. This is the polder model, the Dutch way of running meetings. The disadvantage might be that, as no one really takes on an authoritarian position, it can be harder to reach a consensus – everybody needs to contribute and feel that they have been heard.

9. **Always bring a gift when you are invited**
   Chocolates or flowers are always welcome. If you are invited to somebody's house, or to an event hosted by a colleague, you are expected to bring a small gift as a token of your appreciation for the invitation.

10. **People go crazy over soccer games**
    When the Eurocup or the World Cup take place, the country morphs into a sea of orange. People start grilling outdoors, drinking beer together while watching the games on temporary big screens provided in the big cities and party all over the place. Those crazy orange Dutchies might look intimidating, but they are fun to hang out with, no worries!

11. **You are expected to be independent**
    Since the system does not rely on authority, you are expected to work independently. You are not expected to report to your supervisor as a spoon-fed student who just spews out the results of an analysis. Instead, you are expected to take initiative and move your research forward by yourself.

12. **You are expected to set your own schedule**
    Nobody is going to organize your schedule, and you are expected to decide when to work and what to work on. If you work with other people or if you need to do laboratory work, you are of course expected to show up to work when your co-workers are available.

13. **Be punctual**
    I heard that in the very South of the Netherlands, you may be 15 minutes late, but in the Rotterdam-Amsterdam area, there are no excuses for lateness.

14. **Be honest**
    No need to go in convoluted ways around people, especially those in a more senior position, if you need to get something done. Talk clearly, and tell people what you need, without asking them if they please could maybe do something whenever they have the time for it – the message won't be clear.

15. **Expect honest feedback**
    The Dutch are direct, which means they give you their ideas in an honest and direct way. Their feedback does not try to be politically correct and goes straight to your work's qualities and flaws.

16. **Some regions are very packed – be courteous to others**
    Some parts of the Netherlands are just very densely populated – and people here are used to live in densely knit cities. Be courteous to others, and everything will work out fine.

17. **You won't impress your colleagues by working 120 hours**
    If you do so, they might think you can't manage your time. You'll see people leave their offices in time to go home for dinner at 6pm. You might find this early and that they are not working hard, but you should see the amount of work they get done during their working day!

18. **Many people speak English…**
    Almost everybody in the Netherlands, and certainly everybody in the universities, speaks English. This makes your arrival much easier, and often English is the language of choice during meetings to make sure everybody can follow.

19. **…but you should learn Dutch**
    However, if you are staying for a few years, you should learn Dutch. It's partly a way of showing respect for the country's culture, and partly to really become part of the country and its systems.

20. **It's fun!**
    As with every new place, I needed some time to adjust to the Netherlands, but after many years and summers here, I can safely say that I really enjoy living in the Netherlands and working at TU Delft.

So now you have learned why the Netherlands is awesome! Have we convinced you to explore more about our little country? We would also like to introduce some important topics that you need to think about when planning to move to the Netherlands.

3.2 BEFORE YOU ARRIVE

If you are planning on moving to the Netherlands there are several things that need to be arranged. Some of these things need to be taken care of in your home country. They can vary from acquiring the right documents to making sure your insurance is accepted.

1. **Documents proving your identity**
   It is very important that you check your passport's expiration date, and if applicable, your family members'. For immigration procedures such as visa applications, your passport needs to be valid for a certain amount of time after the visa's date of issue. Also, you may need to show your Birth Certificate at the Dutch embassy or after arrival in the Netherlands. Make sure you arrange one and have it legalized and translated, if needed.

2. **Documents proving you are family**
   In case you wish to bring your partner and/or children, you may need to show that you are related. Proof can be asked, for instance by asking for the birth certificates of your children or your marriage certificate. Make sure to check with your new employer which documents are advised to bring.

3. **Legal Documents**
   For immigration procedures documents need to be official and the Dutch authorities need to be able to check this. This is done by legalizing the documents at a Dutch embassy.

4. **Translating Documents**
   The documents needed by the Dutch Immigration Office (IND) need to be in Dutch, English, French or German. If the official document is written in another language, it needs to be translated by a sworn translator. Make sure your documents are legalized before they are translated!

5. **Insurance**
   According to Dutch law you need to have specific health insurance in order to reside legally in the Netherlands. Some employers require that their employees arrange this in advance of their stay in the Netherlands. Please make sure to check whether your new employer requires you to arrange the correct insurance before you travel to the Netherlands or whether you can arrange it after arrival.

6. **Visa and/or residence permit**
   If you need a visa and/or residence permit, your new employer will apply for them. You will have to provide specific documents that all have to meet strict requirements. Always make sure that you have your new employer check your documents online before you send them by actual mail. This will save some time and money.

7. **Work permit**
   In some cases you will need a work permit before you can legally start working for your new employer in the Netherlands. Note that you are not allowed to work without a valid work permit if you need one. Your employer will apply for the work permit and the procedure is connected with the application procedure for the visa and/or residence permit. Therefore, it is very important to start this application and collect the right documents well in advance.

8. **Childcare**
   If your children need daycare in the Netherlands, it is best to check your options well in advance. It may take some time to be accepted due to waiting lists.

9. **Housing**
   Do not start looking for housing when you are already in the Netherlands. It is not easy to find accommodation. In most cases it will take some time and effort to find affordable and legal housing. It is best to check first whether your future employer provides any housing services to international employees. If that is the case, it is recommended to arrange housing via this service.

10. **Import of Removal Goods**
    You may need to apply for a permit in order to bring removal goods to the Netherlands and be exempted from paying import tax. Whether you need to pay tax depends on your nationality and the type of product. The application for exemption needs to be done well before your move!

11. **Importing your car**
    If you wish to bring your car to the Netherlands, you will need to make some arrangements before you can drive it legally on Dutch roads. What you need to arrange depends on your specific situation.

12. **Bringing pets**
    In case you wish to bring your pet(s), some things need to be arranged ahead of time, such as a passport for your pet. This may take some time, so make sure to arrange this well in advance.

As you can see in the list above, one of the things that you need to think about very soon in the process of moving to the Netherlands is housing. Eva has had some firsthand experience as well with finding suitable accommodation in the Netherlands when she moved from Belgium to Delft. She has written a blog about this subject and gives you an interesting insight in her findings.

3.3 FINDING HOUSING IN THE NETHERLANDS

For many students and employees who move to the Netherlands, finding housing can be a serious challenge. Housing was something that kept me awake at night during my first months in Delft. The key to finding a suitable place to live is just giving yourself enough time to look around.

If you are coming to the Netherlands by yourself, I advise you to look for a temporary place where you can stay for a few weeks first. From there, you can visit other places and look for a room or house that suits your fancy. Don't book housing for an entire year from abroad – you always get disappointed.

The following websites can help you find temporary housing:

- Air BnB
- Housing Anywhere

Otherwise, you can stay in a hostel, bed and breakfast, hotel or camping site for a few days while trying to secure your spot.

If you are coming to the Netherlands with your family, it might be better to apply for university housing. University housing typically gives you a place to live for the first year, while you accommodate your family in the country. Many universities cooperate with Duwo – and there are good and bad stories about university housing. The major advantage of renting through a centralized housing agency is the security that you will have a place when you arrive – something that I consider a big *must* for families. The disadvantage, however, is that they tend to charge a lot of extra application and administration fees.

When it comes to finding your place for the next few years, you might get scared off at first. Some housing is very expensive in the Netherlands – there is a shortage of student rooms. There is public housing, provided by for example Woonnet Haaglanden, but the waiting lists are very long: at least 3 years of waiting time. If you are coming for a 4-year PhD program, your chances of getting public housing are rather small. Private housing companies, such as RotsVast and Van der Vorm (from whom I rented – but their administration is a massive mess), fill the void in the housing market and offer apartments for rent – at prices higher than the public sector.

If you want to live in a room in a shared house, you often have to go to an "instemming" (literally translated: "voting in"). Sometimes that means that 100 students vying for one room are gathered in a house, get to introduce themselves in one sentence, and then the residents of the house randomly point at a number of faces they like, to further interview these folks. You might try your luck at such an event, but I must say that I never got to the second round. Moreover, an "instemming" is typical for Bachelor's and Master's students. As a PhD student in the Netherlands, you are an employee of the university, and you're typically expected to show up to your office early in the morning. "Student life" just might not fit with you anymore…

If you want to cut costs, I recommend you looking for a shared house/apartment. Many PhD students in the Netherlands live in shared accommodation. A good website to look for a room for rent or prospective roommates (if you decide to take a contract and look for peers to share costs) is Kamernet. Also, if you move to the Netherlands by yourself, it can be nice to live in a shared house, so that you can make friends and ask for advice from senior PhD students who might already have had to do all the paperwork that you are about to embark upon.

The best advice that I can give you, is to let all your colleagues know upfront that you are looking for housing.

Mind you, most organisations help their international employees finding accommodation. So always make sure that you check with your contact first. And also, start arranging your accommodation well in advance, especially if you are not from Europe. You need to have legal residency in the Netherlands in order to get the residence permit so it is a vital thing to tackle. Below you will find some additional tips on arranging housing in the Netherlands.

3.4 ACCOMMODATION[1]

Choosing a suitable place is an important decision for every expat in the Netherlands. Nevertheless, there is a variety of housing types available.

1. **Apartments**
   Renting an apartment is probably the best option for those looking for privacy. A self-contained apartment is ideal for professionals or even students but pricing might be an issue.

2. **Houses**
   Renting an entire house is a wise choice for families and those eager to share a property with friends or colleagues. Especially expats should examine thoroughly the terms and conditions of the rental contract and provide guarantees regarding their ability to pay.

3. **Student houses**
   The vast majority of students in the Netherlands rent rooms in student houses, which are privately owned houses designed to host three to six individuals. Living with strangers and following the house rules might be difficult at first, but nearly all adapt over time.

4. **Student apartments**
   As a rule, student flats offer private bedrooms and shared facilities (living room, kitchen, bathroom etc.). These apartments are a bit cheaper than student houses but usually host eight to twelve tenants.

5. **University housing**
   Most Dutch universities offer student apartments and/or student houses through their housing offices. Although both price and facilities are more or less the same as the privately-owned ones, university housing offers expats the opportunity to meet other (international) students and thus, quickly expand their social circle.

   Note that due to the dramatic shortage of student housing, expats should apply for a student house as soon as possible.

6. **Landlord hosting**
   It is common for landlords or even families to rent out part of their houses to students and young professionals. You might have to comply with the (strict) family rules but you will probably enjoy a family-cooked meal every day.

7. **Squats & anti-squats**
   Living in a squat is anything but rare in the Netherlands. Although not exactly legal, you can find a cheap room and have the opportunity to meet really interesting people.

   On the other hand, it is also possible to anti-squat. Landlords rent out unoccupied buildings at extremely low price so that they are not occupied by squatters!

   Yet, anti-squats in the Netherlands are extremely hard to find and most of the time tenants have to equip the house themselves.

Another important thing that you need to check when your plans are still in the early stages, is whether you need a work permit. If needed, your employer will have to apply for it and you can only start your job when you have the actual permit in hand. So make sure to collect the necessary documents and that the permit has been applied for well in advance. Below we provide a bit more information about the work permit.

3.5 WORK PERMIT[2]

Depending on your nationality or the purpose of your stay, you might require a work permit.

When coming to the Netherlands to work, the general rule is that the employer will have to apply for a work permit for you if you do not have the nationality of an EU/EEA member state, Switzerland or Japan. However, since the Dutch government wants to stimulate its 'knowledge economy', scientific researchers are often exempt from this requirSource:ement. This is fortunate, as an ordinary (full) work permit is generally quite difficult to acquire.

3.5.1 A WORK PERMIT UNDER LESSS TRINGENT RULES

Most research situations which do not fall under an exemption of the work permit can profit from less stringent rules. A work permit is still required, however less stringent rules apply for the application procedure. For example, the employer does not need to prove that he could find no suitable person within the EU to do a job.

Less stringent rules apply to foreign nationals who work in higher education (researchers, guest lecturers), or other sectors where shortages have been identified. They are not considered a threat to the Dutch labor market, on the contrary. The Netherlands needs foreign nationals to fill certain positions in order to keep up or improve their competitive position in certain areas such as research.

In practical terms this means that for these categories, one will not check if there is a supply of workers available in a category with a higher priority. This saves the future employer a lot of paperwork and time in the application procedure. More importantly, it greatly increases the chance that a work permit will be approved.

3.5.2 A FULL WORK PERMIT

If neither the exemptions nor the less stringent rules apply to your situation, your employer will have to apply for a full work permit. It will only be checked if there is no supply of suitable workers within the EU.

You may also want to know what the Dutch are like. What makes the Dutch Dutch, what are their habits and social rules? See more below about the culture and the history of the Netherlands.

3.6 DUTCH CULTURE[3]

Compared to many cultures, the Dutch are reserved in public and refrain from extreme displays of physical affection, anger or exuberance (except at/after certain sports events). The Dutch don't tend to strike up casual conversation with strangers, but will respond readily when addressed and always try to be helpful when asked a question.

3.6.1 SOCIAL INTERACTION

In conversation, the Dutch are very direct, use a lot of eye contact and don't consider it impolite to express criticism or speak on their own behalf. They allow – and even expect – the same behaviour from the person they're talking to. This shouldn't be interpreted as rudeness. Most people in the Netherlands speak English because it is taught from primary school on, but fluency differs depending on age and background. German is also widely spoken.

1. **Introductions**
   Stating your name – both first and last or your last name only – when you introduce yourself or are introduced by someone is considered basic protocol. When introducing themselves the Dutch also shake hands with every person in the room.

2. **Visiting**
   As a rule, the Dutch do not like visitors to stop by unannounced. If you know someone well you can call in the morning to ask if you can come by later that day or evening, but one prefers if you warn longer in advance. The greater the social distance between you, the longer in advance you need to call. Grown children even call their parents – and vice versa – to see if it is all right to come by. It is considered impolite to enter a house without being invited.

3. **Fashionably late**
   Conversely, do not invite Dutch acquaintances to "drop by any time". Set a specific time and date and mention what kind of refreshments or food you intend to serve. "Come by next Tuesday at two for coffee" and they will be there at two sharp. "Fashionably late" in Dutch culture means waiting for the bell on the clock tower to stop chiming before you ring the doorbell.

4. **Coffee**
   As the Dutch do not like "surprise" visits, the coffee will be ready to pour when you arrive. Yours should be too. An offer of coffee (or tea) is the absolute minimum expected when someone visits your home. Even the workmen who come to fix a leaky tap will be offered a cup of coffee. Suffice it to say that there will also be biscuits or, if this is a special occasion like a birthday or anniversary, cake or pastries. Always wait to be served. It's considered very impolite to help yourself. And don't forget to offer your Dutch guests a second round of coffee, tea or biscuits; they will not help themselves.

5. **Gifts when visiting**
   A visit to someone's home invariably calls for a gift. Flowers, biscuits, or sweets are almost always appropriate. If you think that your host or hostess might be dieting or diabetic, bring flowers. Flowers are quite inexpensive in the world's largest flower exporting country and are a welcome present.

6. **Kissing**
   The greeting ritual for good friends and family members at a Dutch home catches many foreigners by surprise. Ladies begin first, kissing each person three times – the number is significant – on the cheek (right-left-right). The men follow, shaking hands with the other men and kissing all the women lightly on the cheek three times (right-left-right). Foreigners can get by with shaking hands instead of kissing.

7. **On the phone**
   Unlike many countries where any form of "hello" is sufficient, the Dutch always identify themselves immediately when they answer the phone. They either use their first name (Jan), last name (Jansen) or both (Jan Jansen). The caller is also expected to identify him or herself before stating the aim of the call. If you're using English or some other commonly shared language to communicate on the phone in the Netherlands, you should adopt this custom. It is considered rude to answer or initiate a phone call saying only "hello".

3.7 DUTCH HISTORY[4]

The History of the Netherlands, represented in a timeline.

- 1st century BC: numerous tribes (mostly Frisians and Batavians) become the area's first inhabitants.
- 4th century: Barbarians invade the area.
- 1275: Amsterdam is founded.
- 1421: Storm causes a flood that drowns approximately 10,000 inhabitants.
- 1516: the King of Spain Charles V inherits the Netherlands.
- 1578: Amsterdam abandons the Spanish and Catholic cause.
- 1579: The Union of Utrecht unites the northern Low Countries.
- 1581: The United Provinces declare their independence from Spain.
- 1602: The United East India is founded.
- 1642: Rembrandt paints *The Night Watch*.
- 1648: End of war with Spain; Dutch independence recognized.
- 1795: Velvet Revolution; French occupy the Netherlands.
- 1806–1810: Louis Bonaparte (Napoléon's brother) becomes king of the Netherlands.
- 1813: The Netherlands regains independence.

- 1814: The country becomes Kingdom of the Netherlands headed by Willem l of the House of Oranje-Nassau.
- 1830: Belgium rebels against the Netherlands and breaks free.
- 1920: KLM launces the world's first scheduled air service.
- 1922: Dutch women get the vote.
- 1928: Olympic Games are held in Amsterdam.
- 1940: Germany invades and conquers the Netherlands four days after the aerial bombardment of Rotterdam.
- 1944–1945: Thousands die during the Hunger Winter.
- 1948: Benelux customs union takes effect.
- 1949: The Dutch East Indies receives its independence as Indonesia; the Netherlands joins NATO.
- 1952: The Netherlands founding member of European Coal and Steel Community.
- 1958: The Netherlands joins the European Economic Community.
- 1975: The Netherlands grants independence to Surinam; use of cannabis is decriminalized.
- 1980: Queen Juliana retires and is succeeded by her daughter Beatrix.
- 1987: The Homomonument is unveiled.
- 2001: The world's first same sex marriage takes place in Amsterdam.
- 2002: Euro replaces the Dutch guilder; regulated euthenasia is legalized.
- 2005: Dutch voters reject EU constitution.
- 2010: The Netherlands withdraws its soldiers from Afghanistan.

And then the day comes that you travel to your new home in the Netherlands. These first days may be busy and confusing. There is a lot to do and to get used to before you can really start your life. Make sure not to forget the things below.

3.8 YOUR FIRST DAYS IN THE NETHERLANDS

The following needs to be taken care of during your first days after arrival in the Netherlands:

1. **Contact Employer**
   Make sure you contact your new employer as soon as you can after arrival. They will give instructions and tips about what to arrange where and when.

2. **Health insurance**
   According to Dutch law you need to have specific health insurance in order to reside legally in the Netherlands. Some employers require that their employees arrange this ahead of their stay in the Netherlands. Others will ask you to arrange it as soon as you are in the Netherlands.

3. **Rental agreement**
   Make sure that once you receive the keys to your accommodation you also sign the rental agreement as soon as possible. This rental agreement is necessary for other things that need to be done, such as registration at the GBA/BRP.

4. **Officially apply for the Residence Permit**
   If you are not from the EU, you will have to apply for a residence permit if you are staying in the Netherlands for more than 90 days. It is best to contact your employer so you know where you need to be.

5. **BRP Registration**
   Everyone living in the Netherlands needs to register their address at the BRP (Administration of the Municipality Office). This registration shows that you are legally residing at this address. This registration is necessary for your residence permit, your fiscal number (BSN) and therefore also for legal residence and opening a bank account.

6. **BSN**
   After registration of your Dutch home address at the GBA/BRP, you will automatically be sent your BSN (Burger Service Nummer) to this address. The BSN is needed by your employer in order to pay your salary. Furthermore, you need this number for other purposes, such as opening a bank account.

7. **DigiD**
   A DigiD is a digital account that is used for tax purposes and is very useful for all residents in the Netherlands. A DigiD login can be applied for after registration at the GBA/BRP and you have received a BSN.

Of course you want to make the most of your stay in the Netherlands, so please enjoy what this country has to offer. Do not get too wrapped up in your work but find some time to go out and explore. To help you on your way Eva gives an overview of must sees. Have a great time!

3.8.1 WHAT TO VISIT IN THE NETHERLANDS

Once you've settled in, you might enjoy the following:

1. **Visit Keukenhof**
   If you are in the Netherlands during springtime when the tulips are in bloom, you must go and visit Keukenhof. The wealth of flowers in and around the Bollenstreek is simply overwhelming. I just wish I'd gone more often during the years I was in the Netherlands.

2. **Visit Amsterdam**
   The iconic Dutch capital has much more to offer than drugs and the red light district. It is a stunning city with beautiful architecture and charming canals. The museums are world class, there are plenty of great places for dining, sipping coffee and hanging out, and of course you need to enjoy the presence of the water everywhere.

3. **Travel to neighboring countries**
   The Netherlands is very well-connected to its neighboring countries. You can take the train right into Belgium, France or Germany, or take a boat to the United Kingdom (the Eurostar also goes from Brussels). Keep in mind that you might need an additional visa for visiting the UK! Snatch a cheap flight on Ryanair or EasyJet and go explore another city somewhere in Europe. Enjoy it while you are in the center of Europe!

4. **Buy yourself some flowers**
   Flowers are cheap in the Netherlands, so indulge and get yourself some flowers every now and then to freshen up your house. Tulips in spring, roses in the early summer – you might want to buy them from your city's market to get a great deal.

5. **Swim in the North Sea**
   Ah, the North Sea – there is not a sea or ocean in the world that smells like the North Sea. It's not the beautiful Mediterranean, but there is nothing like walking on an empty beach in November or swimming in the very salty water of the North Sea. Enjoy a day at the beach, and all the beach towns' attractions.

6. **Sample international cuisine in Rotterdam**
   Rotterdam is the melting pot of the Netherlands. While Rotterdam might not have come out 20th century's wars without wounds, it is arguably the Dutch city with the most modern feel. Marvel at the high-rises, then go sample some international cuisine – Rotterdam caters to all tastes.

7. **Go to the Hoge Veluwe**
   The Veluwe feels far away from everything else in the Netherlands, and it makes for a perfect week-end getaway. Stay close to the national park, bike around the park and visit the Kröller-Müller Museum. Observe the wildlife and hills that are so distinctly different from the flat and mostly urban Dutch landscape.

8. **Sail**
   Head to Frisia, hit the lakes and sail – or learn to sail. Water sports are the most popular sports in the Netherlands during the summer. Head out for a day and sail the waters, feel the sun on your skin and the wind in your hair – sailing might be one of the most relaxing activities you can do.

9. **Go to a summer festival**
   Europe and summer festivals – it's a match made in heaven. Chose a summer festival according to the music style you like best, camp out and feel the unity in music while rocking out to one of your favorite bands.

10. **Join a sports or hobby club to make friends**
    While making friends in the Netherlands might take a little more time than in other parts of the world, you can push your luck a little bit by joining a sports team, a music group or by signing up for evening classes.

11. **Go watch a soccer game on a big screen**
    The Dutch go crazy when their national team plays – especially during the world cup or Eurocup. If it's a sunny game day, don't miss the atmosphere and go watch the game on a big screen. Have a beer and enjoy the orange madness.

12. **Travel by boat or bike**
    The Netherlands are an excellent location for slow travel. Towns and cities are close to each other, so you don't need to worry about long stretches without shops or restaurants when you travel slowly. Travel by bike along the excellent Dutch biking facilities, or travel by boat along the rivers and canals.

13. **Walk in wooden shoes**
    Just because we also need to throw in a little cliché: go for nostalgia and get yourself a pair of wooden shoes and walk around in them, reminiscing the old days.

14. **Kinderdijk**
    While on the subject of typical Dutch clichés, don't miss the Kinderdijk windmills. Maybe a bit too much of a touristic location, but hey, a photo will definitely prove to your family back home that you are indeed in the Netherlands.

15. **"Terrasje doen" in summer**
    When the sun's out, you need to join the locals and sit on pub terrace with a beer or soft drink. It's called "terrasje doen" (doing a terrace), and we even talk about "terrasjesweer" (terrace weather – when the weather is good enough to sit outside).

16. **"Gezellig" in winter**
    The days are dark and short during winter, so it's the perfect time of the year to cuddle up on the couch under a blanket or spend evenings playing board games and cooking indoors with friends – all of it at a slow pace. "Gezellig" loosely means to "cosy" up, but it really is much more than that – you need to experience it.

17. **Fine dining in Brabant and Limburg**

The Southern parts of the Netherlands are closer to the Burgundian Belgians, so they know more about good food and fine dining (not saying this because I am Belgian…). Maastricht is a lovely city in Dutch Limburg, close to Germany and Belgium, where food is abundant and delicious. The same goes for Brabant, famous for baked goods, such as Bossche Bollen, and more extensive meals than the rest of the country.

18. **East a mountain of sandwiches for lunch**

What does a Dutch (or Belgian) lunch look like? Well, you take a loaf of bread, take at least 4 slices of them, and put something in between both slices. Cheese between two bread slices is a "dubbele boterham" (sandwich). Jam is a popular choice for breakfast (or you may also choose cheese).

19. **Visit a spa**

Did you know that a spa holds its name from the Belgian city Spa, a famous bathing place for the rich and famous? Spas in this part of the world are a luscious experience, with pools and saunas. Spas and Finnish saunas are perfect on cold winter days.

4 PHD RESEARCH

4.1 SELECTING A PHD PROGRAM AND SUPERVISOR

Let's take a step back and look at the very beginning of your PhD adventure: finding a PhD program and supervisor.

The typical approach is to apply to a number of institutions, and to see where you are accepted, with funding.

While being accepted into a program with funding is, in my opinion, one of the most important aspects of finding a PhD position, there are a number of other aspects to also take into account. As a side note: almost all PhD positions in The Netherlands come with secured funding. In The Netherlands, a PhD student is considered a full-time employee of the university, with an acceptable salary, and social security. You won't go in debt because of your PhD in the Netherlands, and you might even be able to save a good amount of money if you live frugally. Besides the top-quality programs, the secure positions of PhD students could be one more reason to look for a PhD in the Netherlands.

1. **Your research interest**
   If you're going to spend 3 to 4 years of your life focused on one single topic, it'd better be a topic of your interest. Don't settle for a topic you are not interested in at all, just because you are receiving funding. Don't settle for a topic that doesn't raise your enthusiasm just for getting a chance of putting "Dr." in front of your name.

2. **Compatibility with supervisor**
   Before enrolling in a program, take a trip to your prospective institution to talk to your future supervisor in person. See if you share perspectives on your years as a doctoral candidate, see if you are on the same wavelength. While anything can happen down the road, this discussion will give you an idea of how compatible your working style is with that of your supervisor.

3. **Lab facilities**
   If you have an interest in experimental work, see what would be available to you if you'd join a given research group. Likewise, if you're more into numerical/analytical work, see what is available.

4. **Learning opportunities**
   Every PhD is a learning journey. Inquire about the requirements with regard to technical courses, courses in which to train your soft skills, and more. Some PhD programs have a larger course load, some PhD programs are more research-oriented. Define what your learning needs are, and if these are in line with the opportunities at a given institution.

5. **Post-PhD employment opportunities**
   Doing research for 3 to 4 years is lots of fun, but there's the truth of life after that too. Inform yourself about the career paths of graduates from the program you are interested in. See if your prospective institution has good ties to the industry, which might give you more chances at finding employment after your PhD.

6. **Location**
   If you are moving abroad for your PhD, consider the country and city you are moving to. Is it easy to find housing in that region? How high is the cost of living? What is the crime rate (aka is it OK to walk around with your laptop in your backpack?)?

7. **Funding/Employment conditions**
   How is your research going to be paid? Will you be treated as a student on a scholarship, or a full-fledged employee of the institution with job security during a given amount of time and social security? Does your funding cover all years your PhD program is supposed to last?

8. **Support for foreign students**
   If you are coming from abroad, inquire whether the university is providing you with assistance for getting your visa, work permit, housing and all practical aspects of moving abroad. I can speak from experience that having to figure out all bureaucratic rules as a foreigner can be a long and confusing process…

9. **Travel funding**
   What is the conference/field research travel policy of your prospective research group? Are you entitled to 1 international conference per year, or do you get to go wherever you like, as long as you write and present a paper? Is there funding to go and visit foreign labs? To participate in technical committees?

10. **Research group**
    Last but not least, how is the atmosphere in the research group? Are people hanging out together for coffee breaks and lunch? Or do you feel that the cohesion in the group is rather small? Do you feel "at home" with those people, or do you think you'd be left alone?

These 10 aspects highlight different parts of your PhD research. From feeling well in your environment, to having the tools and resources to carry out your research, there are a number of topics to think of when you make your decision with regard to selecting a PhD program. Above all, trust your gut feeling: if when visiting a research group you start feeling excited, then go for it!

4.2 THE PHD EXPERIENCE

The PhD experience is different in different countries, and across different institutions. You can imagine that, as the academic culture differs across countries and institutions, your learning experience as a graduate student depends on the academic culture.

1. **Does the PhD program involve technical courses?**
   Do you need to take a certain number of credits before you can graduate? Are you expected to take technical courses on a voluntary basis? The ratio of coursework to research time typically gives you an idea of the focus of the program: most PhD programs in the US have a stronger focus on coursework, while European programs are fulltime research programs. Your experience and the expectations from your supervisor can be very different depending on what the program's focus is.

2. **Does the PhD program involve courses that train your research skills?**
   Besides technical courses, what are the requirements and opportunities in terms of training your research skills? Are you required or recommended to take courses in academic writing? Is there support to help you learn academic English if you are not a native speaker? Is there funding available for you to go and attend workshops and trainings to improve your research skills?

3. **How often do the PhD Candidate and supervisor meet?**
   Will you meet your supervisor daily, weekly or occasionally? How much responsibility over your project and experiments are handed to you, and for which tasks do you need to have a discussion with your supervisor before making a decision? In short: how much independence are you given? While this aspect really depends on the supervisor and individual research group, I've noticed that USA PhD programs give typically less independence to their PhD students. In Delft, it's the other way around, and you're being thrown in the water before knowing whether you can swim. Depending on your learning style, you might like to give extra thought and attention to exploring the implications of this question.

4. **What is the work atmosphere like in the university?**
   If you have a chance to pay a visit to an attractive institution, you will get a chance to discover the environment. How relaxed are people? Do they seem to be pulling all-nighters on a regular basis, or does the lab have opening and closing times? Do people have lives outside of the program, or do they have to pour all of themselves into their research? Talk to current PhD Candidates in the program: are you expected to show up at nights and on weekends?

5. **Is the PhD Candidate considered as a student or an employee?**
   Being considered an employee instead of a student has two implications. First, it means that you will be paying taxes instead of living from a stipend, and that you will have social security and might be saving for your retirement. Secondly, it means that you are treated differently. If you are considered as an employee, you will be treated as a very junior researcher. On the other hand, if you are officially a student, you will be treated like a very senior student. In the Netherlands, PhD Candidates typically are employees, unless they come with a scholarship from abroad – which might indicate that they will receive a small additional stipend from the university to make sure their living expenses are covered.

6. **Will the PhD Candidate work as a teaching assistant?**
   Will you be given the trust and authority to grade homework, revise exam questions before the exam gets handed to students and provide assistance to students? Or will you be considered more as a student, who still needs to take a number of courses before reaching this level?

7. **Will the PhD Candidate teach (part of) some courses?**
   Following the previous question: will you actually get the opportunity to lecture and prepare for that part of your further academic career? How much trust and authority are you given in your program?

8. **What happens to graduates from the PhD program of this research group?**
   It's always good to inquire your future supervisor about the careers of his/her graduates after obtaining their degree. Do most of them stay in academia, or do they go out and work in the industry? Do they achieve high positions in the industry? Do they keep publishing research, maybe even with their former supervisor? If graduates who left the university keep publishing with their supervisor and keep involved in some smaller research projects, that typically means your prospective supervisor keeps a good relationship with his students after they leave the institution.

9. **Is the dissertation a book or based on papers?**
   Will you have to write a 100,000 words manuscript for your dissertation, or do you need to have a certain number of papers accepted for publication before you can graduate? Where is the focus of the program? On delivering a long report of your research work, or training your academic writing skills by submitting articles that will count towards your h-index? In my opinion, both approaches have their pros and cons, but remember that your publications are very important for building up your career.

10. **How many publications is the PhD Candidate expected to deliver over the course of the program?**
    While most supervisors won't be able to give you an exact number, they might be able to give you some insight in the performance of previous graduates of the same program. Are you expected to publish anything at all during your PhD, or are you advised to wait until you have your dissertation ready and then publish your research? Will you have the opportunity to attend conferences and test your research ideas there amongst your peers?

4.3 WORKING IN A RESEARCH LAB

So you've found yourself a great PhD program and supervisor, which is part of your Plan for Your Academic Life, and now you're supposed to get started with your experiments in your research group's lab.

So what should your plan to get started in a research lab be?

1. **Basic literature review**
   Before you get started, make sure you have at least a basic grasp of the topic you will be studying. Just spend a few afternoons with a delightful cup of coffee or tea to work your way through a few seminal research papers before you start pottering around in the lab. You might not understand all the details of these papers, and that's perfectly OK. Make sure you can produce about 5 pages of text describing what you want to test, why you need to do this, and what your possible outcomes could be.

2. **Materials needed**
   List the materials and equipment that you need for the experiments you want to carry out. Go to the lab to take stock of what is available, and bug someone to order whatever you need if it's missing or almost running out.

3. **Planning of your (first series of) experiments**
   Planning experiments? Yeah right! As if they ever go according to plan… Well, you need a plan even though you might find yourself adjusting it throughout your lab days. Making a plan for your experiments helps you determine which parameter you want to study, and what really matters to your research question.

4. **Gantt chart for your experiments**
   If your experiments consist of different steps, make a Gantt chart outlining which actions should be taking place when. For example, if you are doing research on concrete specimens, you'll need to schedule time for preparing the reinforcement and formwork, then casting the specimen, then waiting 28 days, and then testing the specimen.

5. **Setting up your labbook**
   How will your lab book look? Make an overview of what you want to write down of every experiment. I made a sample sheet and predictions for every experiment, and printed this before every test. During the tests, I would scribble down my notes, and have my predictions handy in case somebody passed by to ask what the theory said.

6. **Starting a research diary**
   Start a document that serves as your research diary, in which you track what you did throughout your experiments. This can be part of your lab book, or you can start a notebook in EverNote.

7. **Set up a processing protocol**
   What will you do with the raw data of your experiments? Have a plan in place for processing your data, before you have gigabytes full of raw data and no time to start coding a way to process your results into graphs. Set up a sheet that can read your raw data and process it into visual information. I used Matlab, because I prefer to see my code rather than having it hidden in awful cell-based formulas (as in MS Excel).

8. **Set up a storage protocol**
   How are you going to save your data? Are you going to make a folder per experiment, or will you save things together per parameter? Set up a protocol and stick to it, so that you can easily find everything back once you're in the full swing. And while you're at it, include a protocol for making back-ups of your data as well. If the world succumbs to a zombie apocalypse, you might still want to have your data, instead of needing to repeat your experiments.

9. **Plan time for writing**
   If you have a protocol for processing your data into visuals, you also need a protocol for preparing your research report. Set up the skeleton of the report of your testing, outline the data you need to write about, and start filling it out during every single experiment to stay on course.

For experiments in a research lab, having a good plan is a great starting point. You might feel tempted to just run to the lab and start tackling your research. I'll have to stop you there:

1. **Learn from the more senior researchers**
   Get together with more experienced PhD researchers in your lab over lunch or coffee, and ask for their advice. If possible, ask if you can work along with them for a few days to learn from their routines. You will probably learn a few tricks and hints you didn't think of when preparing your Lab Plan.

2. **Make friends with the technicians**
   I credit the success of my PhD to the wonderful support of my daily supervisor and lab technician. You're part of a team, so show your team spirit and learn from the technicians – some of them might have been in your lab for 20 years and know exactly what all the newbies do wrong when they start.

3. **Ask someone for a tour**
   Ask a senior researcher or lab technician to take you on a tour and show you what's inside every cupboard, and what every machine does. You might not need everything on your first day, but it's good to know what is available and where to find it. Heck, you might even get a few ideas by seeing what is possible in your lab.

4. **Know where to find products**
   If you get a tour, and you know that your brain is not so good at remembering things, make notes of where to find the products you might need for your experiments. Nothing is as annoying as having to explain the same thing to the newbie 4 times in a row.

5. **Get acquainted with the lab etiquette**
   How does your lab work? When do people start working, when do they take a coffee break? When do you clean up after experiments? Learn about the lab's customs, and adhere to its unwritten rules. Remember, you're in a team, you're not a lone wolf looking for mischief.

Above everything, remember that having the opportunity to touch science with your own hands is a blessing. Even though you might get stuck and feel overwhelmed by the vast amount of experimental work that needs to be done, remember how privileged you are. And above all, remember that science is fun!

4.4 HOW TO MANAGE A RESEARCH PROJECT

Any large research project, whether it is writing a PhD dissertation, working on a journal publication or writing a grant proposal, is obviously rooted in your analytical skills and research abilities, but won't get finished unless you manage your project and time very well.

In most fields, however, our training in managing our projects (related to research or not), is rather limited. When you come to the Netherlands for your academic career, you will see that one of the advantages of doing science in the Netherlands is that there is good support from universities and funding bodies for short workshops that can help you develop these managing skills.

If you have no training in managing projects or have never really streamlined your research processes, you might like to stop and pause for a moment and ask yourself: "What does my usual workflow process look like?" Then, ask yourself: "How can I do this more efficiently and effectively?"

To work more effectively, it is important to ask yourself regularly: "Does this answer my research question?" If not, file it in a "sometime" folder and play with that research idea later. At this point, it is not relevant enough to spend more time on it.

To work more efficiently, you can follow these steps:

1. **Write a quick outline**
   Start with a plan. Researching in the wild without a plan is like driving to a new place without a map or GPS. Before you do anything else, before you estimate how much time the whole thing will take you, just take a sheet of paper and write down a quick outline of the steps that need to be done. For these steps, list down the tasks that you need to carry out, and estimate how much time they will take. Always add 20–30% extra time as a buffer for your tasks to be on the safe side.

2. **Plan the parts of your outline**
   Once you have your outline, you can start planning when you will be doing these tasks. Keep in mind that you never get to really "work" during all the hours that you are in your office. There may be phone calls, emails and other interruptions (I do suggest you plan in a time slot per day to deal with these, and ruthlessly eliminate these distractions at other times of the day).

   You will need to carve out a few hours a day to work on it. For PhD candidates, the other responsibilities can be limited, and you typically can devote at least 5 to 6 hours a day to your project at hand. For a starting assistant professor like me, who is developing new courses and having a high teaching load, finding 1 to 2 hours a day for research is a challenge (I tend to do my research early in the morning, before students start showing up and other tasks creep into my research time). Now take your physical or digital calendar, and start scheduling time slots to work on your research tasks.

3. **Assemble your toolkit**
   Before you enthusiastically start delving into your new project, take a moment to ask yourself: "What do I need?" Do you have the books you need, or do you know where to find them in the library? Do you have access to the right journals and software licenses? Do you have the material in the lab that you need for your experiments? Take a moment to make an inventory. If something is missing, start bugging the right people to get your licenses or material to avoid getting stuck at some point, waiting for the delivery of a missing piece of equipment.

4. **Checkpoints**
   Plan time while you are working on your project to check your progress and course -correct if necessary. A checkpoint can be a meeting with your supervisor at a certain point into your research to see if you are on the same track and if he agrees with the direction in which you are going. Another checkpoint can be your weekly or monthly self-assessment, in which you analyze what work you did in the past week/month, which work you did not do, and why you couldn't do it. Revise how much time things really take you. Think about what goes particularly well, and what you might be struggling with. Self-assessments are important in the process of becoming a fully independent researcher.

5. **Document your assumptions and process**
   While working on your research project, keep track of the trails that did not work out. Keep a version management tab in your spreadsheets so that you know what you did when and why you made certain changes. In science, your basic assumptions are extremely important – so write them down.

   I like keeping track of my assumptions and choices in a separate file. I also like keeping all the handwritten pages that led me to my ultimate choice for a certain model or theory, so that I can later on revisit the logic I followed.

6. **Project journal**
   You will lose pages of calculations, and you will forget where you put a certain measurement device in an experiment. Therefore, keep your lab book/journal and write down briefly what you did every day in your project, which files you created or worked with, and why you made certain choices. Such a journal will give you the quick overview of the progress of your project, and can be a lifesaver when trying to remember what you did a few months earlier.

4.5 HOW TO KNOW WHEN TO CHANGE COURSE

Research is not a linear process at all. More than anything, doing research is like trying to solve a maze.

At times, you will get stuck in dead ends. And very often, it will take quite some time to realize that you are blocked and are in fact just shuffling in place. Maybe your advisor will be convinced that your dead end has a hidden door, somewhere. Maybe you yourself are staring yourself blind on a possibility that does not seem to work.

Movement forward in your research does not happen incrementally, but happens by building up friction and frustration, and then taking a leap forward. So maybe you just need to push through a little more, and something will click and it will all fall into place…

How can you know whether you have hit a real roadblock and need to change gears, or are just building up friction and doing the work necessary to move forward?

This is probably one of the toughest questions that haunt us during the research process. If we knew in advance where the dead ends were, we wouldn't even take those paths and spend months (or even years) trying to force a breakthrough on a lost path.

Granted, I don't believe there is one right solution to this problem. Research is this: you need to chew through the hard parts, do the deep work, and there are no shortcuts in the process. There are plenty of tools that can make our lives easier and help us manage our time, but for deep work, for what really matters, there are no hacks.

Nonetheless, I think there are some red flags that might indicate that you are wasting your time on a lost track.

1. **You are manipulating your data**
   Here is a red flag: never manipulate your data to make it fit to a theory. Never make results up. You don't want to follow down the path of Diederik Stapel and other not-so-glorious science fraudsters. If your theory turns out to be proven wrong by your data, don't try to make a square peg fit into a round hole, and acknowledge that something is missing in your strategy. But hey, don't you think it is more exciting to try and figure out why your assumptions were proven wrong than to make them fit? Finding ways that don't work is progress too, always keep that in mind!

2. **When you look at results from other labs, yours stick out like a sore thumb**
   This red flag would mean that something in your measurements is not working, or – unlikely – that you are on to something really new and exciting. If your test results do not match similar tests from other labs, you need to carefully revisit your techniques. Review all the steps you take in your experimental procedures, check your input (whether that is raw materials from providers, or data) to make sure you have those well-described, and do a few classic benchmark tests to assess if you really have a good grasp of your test setup. If possible, talk to senior colleagues in your lab – they might have run into the same trouble a couple of years ago, or see if you can get in touch with researchers from other labs, to discuss your deviant results.

3. **You can't think of new ways to approach your problem from the same perspective**
   You are just utterly, completely stuck. Your motivation is at a sub-zero level. You try to brainstorm, to mindmap and what not, but you can't feel a spark of excitement about a possible different turn to take. You are just shuffling in place. And since you are the expert in your field, you should learn to recognize that "shuffling in place" feeling. It's awful and we all get confronted with it sometime or other. And when that day comes, don't get mad at yourself, but take it as a valuable lesson.

4. **Your intuition tells you something is wrong**
   Along the same lines as number 3, your intuition knows something about your research. If your motivation went down the drain, if you feel every morning as if you are being faced with an impossibly daunting task, and if your enthusiasm is completely MIA, then your intuition is also giving you signs that something is not working. Worse: if you are not eating well, are surfing online all the time, staying late in the lab to get nothing truly done, starting to get strange headaches, are unable to sleep at night or generally feel miserable, your intuition is shouting at you to stop and slow down or change course. Stop beating yourself up, and spend a day going over your possible other approaches, away from what you were developing earlier.

5. **You are violating basic assumptions**
   Another big red flag. If you are applying a theory or method, and you are violating the basic assumptions, then you should not be using said theory or method. Often, the basic assumptions make perfect sense at first sight, and you will have an immediate understanding of their importance for your approach. Sometimes, the basic assumptions are a little more obscure, and then you might need to review the background of the method or theory you are trying to apply, and spend some extra time understanding and investigating the original assumptions. Theories are only valid when you state their assumptions, remember that.

6. **You can't return to basic principles from the path you've taken**
   If you can't match a benchmark test to your theory, something is missing. If you can't solve a super simple basic case, something is wrong. If you can't return to basic principles and standard cases from the path you have taken, then you should not apply your method to more complex cases. The beauty of science is often in simplicity and clarity. If you need pages of code and a grocery list of assumptions to make something work for a specific case, you are essentially back to the situation of trying to fit a square peg into a round hole.

7. **You are applying methods outside their bounds**
   In same conditions, you might be able to stretch the application boundaries of certain methods and theories a little bit, but in most cases, there are well-defined reasons why you can't take a theory outside of its domain. Here, I am thinking of a mathematic domain – I'm all for you taking methods from different disciplines and applying them in new and innovative ways. Mixing disciplines and learning new skills is always a joy. But if you take a formula that was derived for certain conditions, then keep it within its conditions.

8. **You can't make your boundary conditions make sense**
   Along the same lines as number 7: if you are either running outside of the bounds of the domain of application, or are not able to make your boundary conditions to make sense, then something is rather iffy. As always, go and check the original references to figure out how your precursor researchers dealt with the boundary conditions, and what they were based on, and then judge for yourself to see if it is time to pack your bags and leave.

9. **You need extremely complicated formulas**
   The solutions of complex problems are often beautifully simple. If you need extremely complicated formulas, ask yourself if you can simplify these formulas into something much more useful and handy, and still have a result that is within 20% bounds of the experimental results (20–30% for structural concrete problems is an acceptable level of uncertainty for a simplified method – in your field these values might differ of course!). If you can't reduce your solution to something simpler that works well enough, then something is not working properly.

10. **You get irrational values**
    Ah, the mother of all frustrations. You program an entire suit of assumptions and theories that you applied together to come up with a prediction calculation, and after looking at your computer screen for a couple of minutes while your machine churns away the numbers, you get a result of 1562111+732i – absolute nonsense in other words. Typically, you will get awful results like that when you are violating basic assumptions, are applying methods outside of their bounds or don't master your boundary conditions (or, you might have a coding error of course).

11. **You require extraordinary amounts of computational time**

    If you can't solve it in a beautifully simple way and understand the physics/mechanics behind the problem, then you don't have a solid understanding of the problem, and you're most likely overcomplicating things. If your code or finite element analysis takes forever to run, this might be just a waste of computational time and capacity. Granted, I know that Monte Carlo simulations with many iterations and nonlinear finite element analyses take a lot of time, but you should have an idea of the time it takes before you run your code. And if it takes much longer than expected, something is most likely missing.

12. **You start to feel protective about your strategy**

    If you are starting to feel emotional about your strategy, and protect it as if it were your baby, you are walking away from the wonderful lands of science and uncertainty. Never become obsessed with a certain approach. Instead, acknowledge the theories' limitations, and embrace them. Remain humble: chances that you just invented hot water are slim. Don't pick up a fight with others when they question your methods. Instead, use constructive discussions with your colleagues and supervisors to sharpen your axe and improve your method. Or, if you start to get emotionally intertwined with the strategy you are applying, recognize that it is time to place this strategy in the freezer for a moment, and go and dabble in another approach.

4.6 THE PHD STUDENT'S TOOLBOX

I've been asked many times: "What makes a successful PhD student? Why do successful undergrad and postgrad students suddenly start to struggle when they start their PhD program?"

PhD success is not only related to being a good student. Yes, being a good student is THE prerequisite for starting a PhD program, but it's not the only necessary condition.

Without good grades and a good grip on your field's material, you don't have the understanding to dig deep into it and explore its current boundaries.

However, there are a number of essential research skills to develop as a PhD student. Being aware of these skills is one thing – and actively working on improving these skills will facilitate your path as a PhD student.

1. **Study on your own**
   You'll need to be able to identify, honestly, your lacks in knowledge, and study on your own to gain a better understanding of your topic. You'll need to master the skill of studying for understanding – not just studying in order to pass a test. Be prepared to hole up in your room or the library with a textbook of a course you never studied, and chew your way right through it. This way of studying might or might not fit your learning style – and you might find it difficult to stay focused for long stretches of time.

2. **Reading for quick result grasping**
   Besides the skill of studying a new topic by yourself, and deeply delving into a topic, you also need to develop the skill of quickly scanning a large number of papers, and filtering out the results you need. Some papers (say: the seminal papers on which you will build further) need to be read in depth. Go over all the derivations and understand it inside and out. Some papers will only serve you data, or to give you an idea on how to improve your experimental setup. Learn to recognise whether you can scan through a paper quickly and rob the ideas you need, without chewing over it endlessly. Understand the different phases of reading you need.

3. **Finding the gaps between papers**
   If your research question is not defined at the outset of your PhD research, you will need to describe in detail what exactly you will try to answer. A good way to better describe your research question, and to start your hunt, is to read in order to have a good overview of the current state of your problem, and then to compare different papers to see where the gaps in the current state-of-the-art are. Have you found conflicting data? Different opinions? These situations are typically red flags for you to stop and look even deeper into the difference between the papers you are studying.

4. **Testing theories' boundary conditions**
   Advances in science are made by those who try and push the boundaries of our knowledge. Whenever I get stuck on theoretical work, I meticulously go over the assumptions of the theories that I have been using, and test the boundary conditions and domain of validity of the used theories. Many times, when you get stuck on theoretical work, it is not your derivation that goes awry. You simply are running out of the bounds of the field of application of some theories.

5. **Academic writing**
   Many tweets (check out #acwri) and posts have been devoted to academic writing. It's simple: you can't get your PhD if you don't write a 100k word dissertation or get a number of papers accepted for publication (depending on the system your university has decided upon). You might have written a couple of lab reports, and probably even a Master thesis – but lo and behold, serious Academic Writing that takes you to a PhD level *ain't nothing like that*. I haven't come across a single person to whom writing their first article or dissertation's first chapter came naturally and effortlessly. It's a pain in the beginning, but it's just like learning to ride a bike. Practice makes perfect (or at least: practice makes you faster).

6. **Planning**
   As an undergraduate or Master student, you can be in a reactive mode, where you simply take on the tasks that are thrown at you, and make sure you deliver them by the homework deadline or study by the exam date. In a PhD program, especially research-based programs, where you could do anything for four years, as long as your book is written at the end of the ride, you will need to learn how to plan your work. Learn to subdivide your tasks, from the long-term planning down to your daily to-do list.

7. **Managing your time**
   If you want some inspiration on how to structure your time, check out the academic schedules series that is running here at PhD Talk. It will take some iterations (just like research), but ultimately, you will find a time management system that works for you (or you might like to keep evolving your system as you learn more about time management, and because you might end up liking to experiment with different approaches). You need to learn to understand that now you are in charge of your program. You are not sitting here and doing homework – you are the owner of your research project, and it's all up to you to make it successful.

8. **Designing experiments**
   In undergraduate and MSc level courses, you will follow experiments that are well-understood and that are perhaps described by international codes and standards. Once you start pushing the boundaries of the understanding on a certain topic, you might need to devise an entirely new testing method to isolate the parameter you want to study. Experiment design is not a course you can typically take, and it will take patience, failed setups, and a lot of coffees with senior PhD students or lab staff to come up with a setup that works.

9. **Taking ownership of your work**
   As I've mentioned before, PhD level research is not about sitting and waiting for your adviser to give you instructions on which steps to follow and just sit and crunch numbers for him/her. At the end of your PhD, you need to show the (research) world that you are an independent researcher, ready to develop your own lines of research. Your PhD is your first step in this direction. Typically, your adviser will guide you more in the beginning, but gradually will let you loose and just ask you for your main findings. Understand that your PhD is your metamorphosis from guided MSc student to independent researcher – and anticipate the responsibilities associated therewith.

10. **Bouncing back after a setback**
    Every PhD student goes through the Valley of Despair a number of times. Life doesn't end when you reach a dead end in your research. It's OK to be mad at the world, your experiments and your supervisor for a weekend, and spend said week-end reading fiction / gaming / cooking / hating research. But that phase will and should pass – you will then need to scramble yourself together, and make course corrections in your research. With this big change comes the humility of accepting that you are wrong, by accepting that you can't know from the very beginning what the exact research path will be. It can be painful and frustrating, but you'll need to develop the skill of taking a deep breath, letting go, and starting over fresh.

4.7 HOW TO PREPARE FOR YOUR FIRST CONFERENCE

I'm assuming you have written your paper, and your request has been approved. All you need to do now is to attend the conference.

1. **Request a travel budget**
   I think it's inherently wrong that we're so often tacitly assumed to be forking out (part of) the money ourselves to attend conferences. Asking an underpaid PhD student to pay a registration fee of 1000 USD at a conference is so far away from the gist of why we are practicing science and want to exchange our ideas. Most universities do have travel budgets you can apply to. Some of these additional scholarships are more unbiased, in other cases you might just need to write a letter to an important person and hope he/she reads this on a good day and helps you with the expenses. By all means, the system at Delft University of Technology is fair and straightforward: if you have the approval to travel, they take care of all your expenses (including the cost of food while you are away).

2. **Book in advance**
   Many conferences have early-bird registration fees. Avoid additional costs by booking as early as possible (by the same token: apply for travel funding as early as possible). Similarly, your flight and hotel registration may be cheaper if you book in advance – and this will help you avoid the unpleasant situation of not finding space on a flight or in the hotel of your choice as the conference approaches. Booking early is part of being well-prepared.

3. **Study the conference schedule**
   Now that you know that you are going for sure, it is time to outline your itinerary for the conference. Make sure you read all the information, and know where and when to register (pro tip: try to register as early as possible to avoid unpleasant surprises, such as a payment that did not go through and your registration that did not get processed).

Read the titles of all presentations to familiarize yourself with the topics, and mark which presentations you want to see. Note that sometimes presentations are only remotely related to the session's topic, so don't let yourself be guided too much by a topic. Plan to ask questions after the presentations as well.

4. **Identify who to talk to**
   From the conference schedule, identify who is carrying out research related to yours, and make sure you attend these presentations. Try to talk with the presenter after his/her presentation, so you can introduce yourself to him/her. Also identify in the scientific committee if there are senior researchers you would like to talk to – often the members of the scientific committee will attend the conference as well.

5. **Plan some downtime**
   Conferences are exhausting, so it is a good idea, especially for your first conference, to identify when you could have a little bit of downtime. If your conference schedule is packed with dinners until midnight and sessions that start at 8 am, you will be running on around 6 hours of sleep, which for many of us is not enough. Factor in the fact that attending conference presentations is like a scaled-up version of attending lectures, and you know you need your full concentration to benefit from attending the sessions. Often, you will also be jetlagged and tired from traveling to the conference, so that doesn't help either with keeping sharp. Don't neglect self-care when traveling.

6. **Pack your clothes**
   When packing your bag, travel light – just take the clothes you are planning to wear for conference days, a spare shirt in case you spill your coffee, workout clothes if you think you can squeeze in some exercise, and comfortable clothes for your flight. You can find an overview of what I typically take to a conference here. Keep in mind as well that sometimes you might be traveling to a warm destination, but the AC in the conference venue might be turned to arctic. Similarly, you might be heading to Snow Capital in January, and find that the heating is set to boil you alive. The solution: take some layers.

7. **Explore the city**
   Plan when you will have time to visit the city you are in. Keep in mind that the conference is your main goal, but that the chance of returning to that city might be small. A good strategy is to arrive early: you will have a day to visit the city, register for the conference, and if your flight is delayed you will only miss out on the touristy part and will not have missed anything at the conference.

8. **Go with a finished presentation**

   You will not have much time to make your presentation during the conference. Go well-prepared and have your presentation ready, and practiced. I typically finish my presentation two-three weeks in advance so that I can send it to my co-authors for approval. I also (still, after all these years!) practice my presentation until I have a good feeling for the time I have available. Keep in mind as well that if, for example, your conference has four presentations per hour, you will not speak longer than 15 minutes. You'll need to calculate the time for getting introduced, the potential time for setting up computers, and time for questions. In this sense, prepare a presentation of 10–12 minutes. You don't want to be the person taking too much time (especially not before the coffee or lunch breaks). Many conferences will ask you to send/upload your presentation in advance. By all means, check the speaker ready room to make sure your presentation is in the system, and that everything appears on the screen as you intended (different PowerPoint versions sometimes move things around – correct that before you are up on the stage to present).

9. **Travel early**
   I once almost missed the first day of a conference because my first flight was delayed, I missed my connecting flight and was then put onto the waiting list. I was so hopeful they'd find a spot for me, and just before the flight took off, I heard my name from the standby list as cleared to board. Since then, I've been traveling with a day of extra time for my long flights. I'd rather stay one extra night in the hotel than miss the entire first day of a conference because of travel issues.

10. **Have everything backed-up**
    Print out your boarding pass, hotel reservations and conference registration confirmation. Figure out how to get from the airport to the hotel to avoid having to pay for a cab. Print out your presentation slides to practice. Back up all emails regarding the conference, your paper, presentation and all relevant documents for when you need them. I don't travel with a laptop anymore, but I use a tablet.

11. **Plan your time before and after the conference**
    I once did the math to see how much time a conference really takes – from the first step of finding a suitable conference to presenting my work to the point of needing extra time to recover after a conference.
    Keep in mind that, after the conference, you don't simply return to your office, sit yourself in front of your computer and keep going. You'll need to file for reimbursement and do all the administration work. You will need to send a few emails to catch up with people you met during the conference. Your overflowing mailbox might take a day to get sorted through. You'll need to catch up in the lab to see how things are going. There'll be people who need to talk to you, mail you or phone you. You'll be tired and busy. Plan accordingly.

4.8 EXPLAINING THE VALUE OF YOUR SCIENCE TO FRIENDS AND FAMILY

Unless you are in the unique case of having a family full of academics, it might be hard to communicate the value of your science to your friends and family.

Have your friends asked you when you will finally be out of school?
Has your family been wondering why you keep on changing countries?
Do you get yawns or frowny faces when you try to explain your work?

Don't despair – it takes just a little bit of practice to explain the value of your science to friends and family.

Remember how TED Talks can make scientific topics the most exciting things ever, and how the National Geographic has its way of bringing research to the broader public? For structural engineering, for example, I think that MegaStructures does an excellent job.

So, how can you involve your family and friends in your enthusiasm for your research?

1. **Societal relevance**
   Before getting into the nitty-gritty details of your research, take a helicopter view and explain the broader importance of your work. Are you somehow helping to find a cure for cancer, making safer bridges or making food production cheaper? Even though you yourself might not be involved in the broader scope directly, your science has its position in making the world a better place.

2. **Compare to everyday situations**
   Remember how popular science documentaries compare distances to a number of soccer fields, and weights to a number of trucks? When presented like this, your numbers become alive – we can all relate to the dimension of a soccer field and the weight of a truck. So jot down a few numbers on the back of an envelope and learn how to translate your numbers into something from everyday life.

3. **Avoid jargon**
   At TEDx Delft, Leo Kouwenhoven joked that you lose half of your audience with every equation you show in a presentation – and subsequently showed two equations. Avoid technical terms when talking to your friends and family – it will only reinforce the stereotype of the scientist living in his own world, babbling in an unintelligible pidgin language. Practice explaining your science without any technical terms – you'll often need this skill anyway.

4. **Pictures**
   Bring your science to life by showing pictures of your laboratory and your experiments to your friends and family. But also show pictures of your conferences, and how "social" science as a practice really is – people need to know that the scientist who spends his days withering away in a dark room, working on a project all by himself, barely exists. Science is collaboration, science is playing around and fiddling. Tell your story of exploration and discovery to your friends and family.

5. **Life in science is fun**
   Following the previous point, involve your family and friends into your life as a scientist. Explain them how diverse your tasks are. Do you know anybody in science who works on the same tasks for months nonstop? No! Instead, we teach, do research, talk to the industry, play around in the lab, plan, go hunt for obscure articles in the library, etc. Highlight how independent you are as an academic, how much freedom you have in pursuing your own interests, making your daily schedule, getting involved in additional activities and more. Show them how multifaceted scientists really are, much to the contrary of some popular clichés.

5 ACADEMIC WRITING

5.1 CULTIVATING THE ART OF WRITING

Let's talk about the nitty-gritty of academia. If you are thinking about applying to PhD programs (in the Netherlands, or any other place in the world), you'll need to be ready to roll up your sleeves and type and type until your keyboard falls apart.

Writing is a skill that I have always considered as very important. When Cal Newport from Study Hacks determined what makes a successful career in science, and found out that it is your number of published papers, and how often they are cited, I realized that, more than anything, writing is what matters in academia.

To understand writing in its different aspects, I've been running the Writers' Lab series over the past year. The writers' lab series contains posts about my experiences writing my dissertation, guest posts from academics and writers from all walks of life, and other topics related to (academic) writing.

But let's say that you are a fledgling graduate student, or an early career researcher wanting to be successful in academia. The previous has shown you that, more than anything, you need to cultivate the art of writing. How do we develop the habit of writing so that we can steadily produce our reports, dissertation chapters and papers?

1. **Schedule time**
   Starting to write a conference paper the night before the deadline is bad planning. Research has shown that academic writers who write steadily for a certain amount of time every day have a larger academic output than those who go for binge-writing.

   If you are an (aspiring) PhD student, this means that you should continuously report your work, so that you can pull from that material later on when you need to write a paper, or for when you start writing your dissertation. If you are an early career researcher, this means that you should try to set aside chunks of writing time, preferably every day, so that you can steadily work on your publications.

2. **Have a writing plan**
   When you schedule time consistently throughout your months and weeks, you also need to know what you want to be writing from week to week and from month to month. Make an overview of the reports, chapters and papers that you need to write, and make a writing plan.

   PhD students, this means that you have the general overview of which chapters you will be writing when (in which year of your program), and keep space to write background reports and papers that will come up along the way.

   Early career researchers, you'll need a plan for writing your journal papers. Taking into consideration all other responsibilities, 2 to 3 months per paper is a good estimate.

3. **Write a lot**
   Train that writing muscle by writing a lot! It sounds like a no-brainer, but it is so important. By the way, writing e-mails and tweets doesn't count towards your "writing a lot". Develop your writing skills by writing for different audiences. Outside of academia, you can further develop your writing skills through journaling, blogging and writing fiction.

4. **Learn from examples**
   Nothing is a better teacher than an example of a paper that you find particularly clear. Did you notice that some papers seem to take you forever to understand, and that you have to read sentences twice? That can be a sign of poor writing, more than of your poor understanding. On the other hand, do you have a paper that you find yourself nodding along to, making little side calculations and sketches? Signs are that this is a clear paper. Analyze papers that appeal to you. How long are the sentences? How much jargon did the author use? How is the paper structured? Learn from this example, and apply these lessons to your own work.

5. **Become your own critic**
   It's time to grow up, folks! Nobody is going to come in with a red pen and correct your writing anymore. Your adviser might help you out at the beginning of your PhD, but afterwards poor writing will just be sent to the "reject" pile. Learn to become your own critic. Analyze your sentences, the flow of your paragraphs, the structure of your chapter/paper, and the visual clarity of your figures. Give your work a few weeks of rest, and then return with sharper eyes.

6. **Figures are part of writing too**
   When we think about writing, we think about words and sentences. Writing is more than that, however. When we skim through a paper, we typically read the abstract, introduction, conclusions and then glance over the figures. As such, figures are a vital part of our writing. Learn how to draw clear figures (admittedly, I still struggle with this area of my writing). For good references on visual information, check out Edward Tufte's books.

7. **Revise profoundly**
   Revising your work is something that needs to be scheduled too. Don't just make a plan based on the time it takes to write your first draft, but plan time for editing, for letting your work rest, and for discussing it with others. What I learned last year, is that editing my dissertation took twice as long as writing the first draft. Even though I had major parts of my dissertation in conference papers and reports, revising still took much more time than I could have imagined.

   When your writing does not flow, erase an entire paragraph, define the message you want to convey in that paragraph (you can do this by talking out loud: "I want this paragraph to describe such and such based on X and Y"), and then rewrite your entire paragraph. Don't be afraid of wiping out text here and there and starting over. Instead, know that this is an essential step in moving your writing forwards and towards higher quality.

8. **Write with others**
   As a PhD student, you will mostly be writing to and with your adviser and committee members. But, if possible, try to broaden your pool of co-authors. You might want to reach out at conferences to fellow researchers with whom you might like to work on a publication. If you are exposed to other writers from different institutions, you will learn from their writing styles, and your own writing will mature. Break out of the confinement of your fixed group of co-authors and actively seek cooperation across institutions, countries and disciplines.

5.2 YOUR DISSERTATION OUTLINE

As you finish up your last experiments of your PhD research, or put the last pieces of the puzzle together, you will start thinking: "Now I should start writing…" – a question that probably will echo on and on in your head for the next couple of weeks (or maybe even months) as "But really, once I'm done with XXX, I really will start writing…".

And then one day, you decide to take the plunge and **Start Writing**. You open a fresh Word document, maybe put some reference papers on your desk and then…then what?

You might stare at your empty screen. You might chew on your pencil. You might get side-tracked and do some urgent work first. But the all-encompassing thought in your mind now becomes: "So I decided to start writing – without knowing how to actually Start Writing!"

When you need to produce a book-style dissertation of about 100,000 words, you don't just sit yourself down in front of your computer, write the first line of your introduction, and then only look up once you've written your conclusion's last sentence. "One does not simply walk into Mordor" (and show up bright and fresh on the other side).

You need a map for this expedition – and in thesis terms, that means you need an outline.

This is not just a table of contents: you need to find out how all the elements can be tied back to your research question. You need something like an "enhanced" table of contents, or a mind-map of your soon-to-be book.

Therefore, I advise you to do the following:

Draw a scheme or diagram of the content, so you know how the different chapters are interrelated.

This scheme is not something that you will use in the very beginning – I think it is an excellent element to add such a scheme to the first chapter of your dissertation. In your introduction, you will typically give an overview of what the reader can expect in every single chapter of your dissertation. Go up one level, and present how these chapters are logically interrelated by showing the diagram of the contents of your dissertation.

Once you have your overview diagram ready, you might have all the tools you need to get started with your first chapter. While opinions differ on when you should write your introduction, I think it's not a bad idea to scramble your thoughts together and write a provisional introduction. You can write this just as an exercise in defining the boundaries of what you will discuss in your dissertation, and within which limits you will deal with your research question. Most likely, you will completely revise your introduction once you've completed your dissertation, but the first gist of preparing ground for your writing will most likely still be there.

5.3 HOW TO MANAGE MY PAPERS

At the beginning of your research career, working on one research paper will be a big deal. Once you gain more experience, and once you move on to your next career stages, you might transition into a next stage of writing, the stage of working on many papers at once.

Having many papers going on at once can be messy. You'll need to find a way to keep track of deadlines, see if you need to go and bug the editor to get your reviews back if after many months they still haven't given you a sign of life, and keep track of the replies of your co-authors. Or you might have included a figure in your paper, but later, when it's time to upload a high-quality version, you've forgotten where on earth it is.

1. **Planning your papers**
   I use a Google Document in which I keep an overview of the papers in progress and the papers I have in mind to write. I use a spreadsheet in Google Docs for this, which is a rather low-tech approach for planning, but let me explain why I prefer Google Docs for this purpose:

   - **Shareable:** My Google Doc is shared with the people who are most often my co-authors. I don't need to send an updated file whenever I make a change – they can simply see the latest version whenever they want to check our progress. And on the rare occasion that I do need a print or time-snapshot of this table, I can easily print it (as a PDF or physical print), and use it for something like my annual evaluation.
   - **Accessible:** Whenever I have an idea of a paper I should write, or if I'm traveling and forgot how far along I am with a given paper, I can simply access this document in the cloud, and check the table. This feature is especially helpful since I'm working at institutions that are divided over 2 continents.
   - **Overview of dates and people:** My Google Docs table is very simple, and consists of the following columns: "Paper" has an abbreviated name for the paper, typically related to the journal I'm aiming at; "Topic", well, contains the paper's topic; "Journal/Venue" contains the journal or conference in which I'm planning to publish this work; "First Draft" has the goal-deadline for my first draft; "Revisions" has my goal-deadline for receiving my co-author's revisions; "Co-author X/Y/Z" has an x if said co-author already sent me his comments; "Submitting" has my goal-deadline for first submission. Then, for the second round of reviews, I use the following columns next to the previously discussed ones: "Draft Review", "Revision", "Co-author X/Y/Z" and "Resubmit". Finally, I have a column that I use for personal notes.
   - **Comments:** Using a simple spreadsheet allows me to write comments in separate columns. What do I include? For example, if a paper is rejected, I make a comment on where else I could publish it and when I think I can rework it. Or I write that I need to ask other people if they want to co-author the paper.
   - **Color-coding:** I use simple color-coding in the sheet (by filling the background of the cells in the first column): light blue for papers that are completely finished, green for papers that are on hold or in review, orange for papers in progress, and red for papers I haven't started yet.

2. **Reminders and future plans**

Besides the Google Document with the planning table, I also put self-imposed and hard deadlines on my to-do list app. I use Todoist, and have a separate project titled "Writing papers". Not only do I have deadlines there (which show up as reminders on the Todoist website, the phone and tablet app etc.), but I also have reminders for starting dates (when I plan to start working on a paper), and vague ideas for papers that have no deadline but that I review from time to.

Once a "start-writing" reminder shows up in my Todoist (or even better: in the 7 days ahead view that I always use), I add it to my weekly planning in Google Calendar. I use a weekly template to make sure I find the time to teach, prepare class, read and write papers and do research. Oh, and – to my distress – read and reply to emails. The weekly template is generic, but on a weekly and monthly basis, I fill out precisely which paper I'll be working on during my writing time, and which piece of research I'll be working on during my research hours. On a daily basis, I write down my 3 most important tasks in my paper-based planner, because I tend to get distracted when I need to keep checking my schedule on Google Calendar online.

3. **Organizing documents**
   Another related element here is keeping track of all mails from the editors related to a given paper, and the figures – to avoid not finding the high-resolution version of a given figure once you need to upload them for submission. I create a folder per paper. Within this folder I save the paper and its different versions (I use "Paper Title YYYYMMDD. doc" as a name for the documents). In a "Figs" subfolder, I save the figures – lately I've been just using fig 1.eps, fig 2.eps etc. to name the figures. I also keep a subfolder called "Review process" for replies to reviewers and any email related to the review process. Another folder, "Calcs", typically contains the calculations backing up the data in the paper for easy reference. Since I have an Inbox Zero, I also save all emails regarding the paper in its main folder, such as the email giving me the name of the submission, and its submission confirmation.

   This method, in a nutshell, helps me to keep an overview of the papers that I have in process. It's easy, in the cloud, and suits the purpose. In my opinion, a complex time management system with a lot of zinging and dinging features is not what we need – instead, a simple system that just contains basic information is sufficient.

5.4 HOW TO START BLOGGING AS A RESEARCHER

You may have heard about a fellow scientist that to be a researcher in the 21st century, you need an online presence. You may enjoy reading other academics' blogs and may like to share your two cents with the world too.

Whatever reason attracts you to blogging, you might feel intimidated by the task. If you want to start writing on the internet, here are some of the steps you could consider taking.

1. **Write a guest post**
   If you are not sure whether blogging is for you, or whether you have enough time and material to keep a blog up, you can always test the waters by writing a guest post for another blog. Reach out to a blog's editor, explain what you would like to write about (consider this your short abstract), and how your post could benefit their readers. A clear, concise email could secure your little spot on the internet. Typically, the editor will get back to you with some guidelines for posting on the blog, which you can consider similar to the paper formatting guidelines for a publication, and possible thoughts on how you can develop your topic further into a blog post.

2. **Start or join a shared blog**
   If you feel ready to write on a more regular basis, but don't want to commit too much, you can join a shared blog, such as GradHacker, or start a collective blog for your research group or project. Sharing responsibilities can be an excellent way to grow a blog as a project without having to carry all the responsibility yourself.

3. **Select a blogging platform**
   If you are ready to start a shared blog, or perhaps a blog of your very own, you need to think about the following:

   - Where do I want my blog to go on the internet?

     Do you want your blog to be part of a website or do you want it to stand on its own? Do you want your own domain, or are you fine with a blogger or Wordpress account?

   - What will my blog's name be?

     Once you know where you want your blog to appear on the internet, you will need to select a name for your blog. Do you want to use your name, or do you want to give the blog a name of its own?

   Once you have sorted this out, you can sign up and register for your place on the World Wide Web. From then on, you're all set to start writing or start tinkering with your layout.

4. **Write about your weekly experiences**
   Now that you have your own online space, let's discuss what you could write about. One way you could be sharing your research experience is by writing a weekly update on your work, what you have been doing for the past week and what caught your attention on the internet about your research topic or academia in general.

5. **Share your publications and presentations**
   Your blog is an excellent place to share your publications and presentations. While a blog solely consisting of entries with abstracts of published papers of yours might be too niche for your (future) readers, you can write short posts in which you gather some information about the conference you attended, the abstract of the paper you presented, and a SlideShare presentation of your slides. You can see an example of how I share my presentations after conferences here, and how I write about recently published journal papers.

6. **Explain your research**
   Your blog could also be a great place to write about your science in a more popular way. You could share videos of your experiments online – something you cannot do in your journal papers. You can make a series of photographs with explanations about steps you've gone through in the laboratory – again, something we do not have a set medium for in our scientific community.

7. **Share what you learned**
   When publishing research in a paper, you mostly publish the results of the technique that actually worked. I've suggested blogging in the past as a possible means to tackle publication bias and eradicate the skewed version of reality we sometimes find from research because of publication bias.

   If you do not feel like sharing online what did not work for you in the laboratory (although I think you should; we can only disrupt higher education and academia once we truly embrace open science), you can also share stories about little hacks and things that work for you in the laboratory or in your research. Over the years, I've mostly focused on this type of posts, as I enjoy reaching out to a broader academic audience. An example of this type of posts is this article in which I share how I write my abstracts.

8. **Critique another article**
   You might read a blog post by another academic, and realize that in your field, reality is different. You can react to the author by writing in the comments section of the original post, but you could take it one step further, and write a full reply on your own blog. Note that with "critique" here I mean a civilized critique and not a complete bashing of someone else's opinions. An example of this type of posts is my (very old) reflection on a list of things to let go of in 2011.

9. **Describe how you implemented another article**
   Did you read about someone's experiences and decided to try them out? Why not write a post about your experiences after trying a certain technique for some time? Especially when it comes to hacks and productivity tricks, you can try out what other bloggers recommend, and see how they fit your field of work and activities. You might run into problems that are typical for your field – write about how you solved these. You could find that some methods feel too rigid for you, and discuss how you blend these methods into the messy reality of daily life.

10. **Link to videos or Storify**
    Have you filmed some of your research and experiments? Upload them to Youtube, write a post about what your tests and your findings.

    Have you had an interesting Twitter conversation with fellow academics? Make a Storify out of it and share it on your blog.

    An example is my post on Gender in Academia.

6 AFTER YOUR PHD

6.1 PLAN YOUR CAREER IN SCIENCE

Did you just get offered a research position? Congratulations, enjoy the feeling of success and triumph, and celebrate it. Then, fasten your seatbelt, you are in for a bumpy ride.

Regardless of the point in your science career, you always need to have **a plan and roadmap for your next steps** (well, unless you are headed for retirement). We are talking about a career in science in general – whether that be at a university as an academic or an industry position.

The key here is that having a plan gives you **more determination**. If you point your compass towards your personal north and start walking towards it, your chances are much higher than if you simply roam around.

However, **never forget to be flexible**. If your dream position does not show up, then start cobbling together something that makes you happy, and that still more or less points towards your north. Many people (myself included) work a few part-time jobs to assemble a career for themselves. **Create your own possibilities**. Don't lean back in defeat when something does not work out. You never did that after you first failure, did you?

Remember that nothing is written in stone, and if you feel like a certain path is plainly making you miserable, then be true to yourself and look for alternatives. Now, let's look at how you can **put your goals into action**!

1. **Understanding the requirements**
   The first step might sound like a no-brainer, but in reality, the requirements to move forward might not always be that clear. If you are on a tenure-track path, then maybe you have a rigid set of criteria that you need to fulfil within a certain amount of time, before you can move up. In most cases, there is a lot of reading in between the lines going on. Values differ from work place to work place, even from boss to boss. As such, it can be a challenge to see what is valued most highly for a career option in a certain place. If the list of requirements looks endless, the top priority might be hard to find.

   When the requirements need some digging to uncover, go and observe people in that workplace. This doesn't mean walking into a place and asking "Hey folks, how do things work here?" Instead, go to open days, meet people at industry events and listen to their stories. Meeting groups of people from the same place can be particularly interesting to observe their group dynamics.

2. **Learning from example**
   Who is doing what you would love to do in five or twenty years from now? What did this person do prior to achieving that position? Study a number of people whose career path seems in line with your dreams. Try to identify the tipping points in their careers (from "hit publications" to involvement in industry organizations), and learn from these examples.

   To broaden your outlook on achieving excellence in general, look at examples outside of your field. Read biographies of inspiring leaders, and see in which ways you can add a bit of their oomph to your life. Dare to be your best.

3. **Show up and lean in**
   Be visible. If you want to climb the academic ladder, then go to the right conferences, get involved in committees, visit other labs, expose your name through publications, etc. You know the drill – or you should have distilled the drill from your examples. If you are shooting for a job in the industry, then start getting involved in industry events, industry organizations and more.

Don't hide in a dark hole and slave away at getting your very best work out. You might be tempted to tell yourself "I'll wait another six months before I go out to a conference and present my work, so that I can be sure it's worth showing to the world." Come out now and put yourself out there.

4. **Stay authentic**
   After finding your inspiration, you might be tempted to become a copy of a successful person who you admire. Keep in mind that an example should only serve as inspiration: something to learn from and add your own sauce to.

   It might sound preachy and fluffy, but only when you are true to yourself can you stand out. If you are true to yourself, people will notice you for who you are instead of seeing an anonymous copycat of someone who you are not, will never be and can never be.

5. **Take your personal life into account**
   Last but not least: don't forget to plan within the opportunities and constraints of your personal life. If you have a family, moving abroad to your ideal lab might be a big challenge. If you're ready to take the plunge, make sure you have everyone on board in this adventure – otherwise you'll end up either separated from those who give you the energy and love to excel at your work, or dragging along a bunch of unhappy people who will bring your mood and energy down.

   Your career is an important part of your life. It's something you can take pride in, something that can fulfil you intellectually. But it's just a part of your life – there are other aspects you should never forget unless you consciously make that choice. When I decided to move to the Netherlands and leave my then partner/now husband in the USA, it was a conscious choice. It motivated me to work hard and finish quickly. At the same time, we had a plan for afterwards, and having that light at the end of the long distance relationship tunnel was something I had to remind myself of regularly.

   Now go and reflect on what your ideal next step looks like, what you need to achieve to get there, and make it come true!

6.2 HIGHLIGHTING YOUR ACADEMIC SKILLS

After three or four years of working hard on your PhD, you may wonder: what's next?

Very few PhD graduates remain in academia after obtaining their doctoral degree. Most of us enter the industry.

And every now and again, especially in the Netherlands, you may hear this question during the hiring process:

"Why did you spend your time doing research if you wanted to come and work in the industry? Shouldn't you have gone to work straight after your Master's degree and used these past years to gather real-life experience?"

Do not feel offended or misunderstood if this or a similar question comes up. Instead, **highlight your academic skills** as a function of your job search. Needless to say, think thoroughly about this subject before you walk into an interview.

While a number of years of experience in practice are certainly very valuable, these years in academia, especially while working on your PhD, provide you with skills that might make you a more attractive candidate.

Let me restate clearly: **your doctoral training has made you an independent researcher, with an array of unique skills that are highly valuable in industry**.

Depending on your field, here are the **skills that put you ahead of other applicants**:

1. **Analytical skills**
   Whether your PhD research relies on qualitative or quantitative data analysis, there is almost always a large chunk of analytical work involved in PhD research. Being able to handle large amounts of data is a skill needed by consultancy offices, private labs as well as many large technical companies.

2. **Autonomy**
   Getting a PhD is all about becoming an independent researcher. You might be working for weeks on end on something, trying out different paths, iterating, and making your own decisions. This large level of autonomy gives you the ability to work on larger projects, all by yourself, while being able to communicate your decisions and the reasons for these decisions to your superiors.

3. **Ability to learn new topics and skills**
   A very typical situation during your PhD studies is one in which you run into a subject that you don't know much about, or one in which you seem to be needing a different computer program or programming language to continue. Instead of shrugging and thinking: "Well, too bad, I don't know that…", you head out to the library to pick up a book on the subject, read a couple of papers on the subject, follow an online tutorial or start getting involved in a programmer's forum. This ability to learn new topics and skills by yourself, combined with your autonomy, gives you the ability to advance quickly in your career in almost any field.

4. **Deep understanding of your field**
   Since a doctoral degree is the highest level of education you can achieve, you can pride yourself on the fact that you know more about a certain topic than most people. In fact, when it comes down to your sub-topic of research, you can claim that you are the expert in your field on that topic – you simply are the only person who knows all the ins and outs of your PhD topic.

5. **Teamworking skills**
   A PhD degree is always the result of cooperation: with your supervisors, funding institutions, other researchers, and laboratory technicians. No one ever graduated by brooding in their room in complete isolation for a couple of years and then publishing 1,000 pages of innovative research material. Being able to work in teams is one of the great skills you learn during your doctoral studies.

6. **Writing skills**
   Your papers and thesis didn't write themselves, and they certainly did not get written without developing sound academic writing skills. With all the writing practice you get during your doctoral years, you will be able to whisk together reports and briefings faster and in a clearer style than your peers who did not go into a PhD program.

7. **Presentation skills**
   Along with excellent training in (academic) writing, you also were very well trained at giving presentations. Remember your very first presentation in graduate school? Remember how nervous you were, and how afterwards you learned how to better structure your talks until they almost became second nature? You need to realize that this communication skill is also very valuable to prospective employers.

8. **Other skills you learned during your PhD**
   During your PhD years, you certainly picked up a few extra, general skills besides your analytical and communication skills. You might have taught yourself a programming language, might have learned how to speed-read, or might have taken a number of courses to sharpen your soft skills. Think about all these extra skills, and use them to your advantage to show the benefit of your years of doctoral study.

As I mentioned earlier, make sure that you prepare for your interview by thinking about the additional benefits you can bring to a company through the skills and topics you mastered during your PhD research. Highlight your value and your skills' function for the company you are applying to: show them clearly what unique characteristics you will bring them, and they will benefit.

6.3 ACADEMIC NOMADS

Life in academia can take you from one temporal contract in country A to another challenge in country B, with stops for fieldwork in countries C and D and maybe a few months as a visiting scholar in country E. Most academics are hired for a period of 2two to four years, depending on the type of work that they do.

I like to call those that hop from country to country as their career meanders over the years **the academic nomads**.

Most of us might not be expecting this ever-evolving and ever-traveling path when we start our careers in academia. But then research life happens and you get to know people and opportunities come up, and before you know it you're boxing up your life for the umpteenth time.

Very often, I read stories of fellow academics who move from continent to continent as they amass scholarships, short-term job contracts etc.

If you are headed for a life as an academic nomad, then you might want to take the following tips into account:

1. **Go digital**
   Books are heavy, so to avoid having to move by container all the time, try to buy as many digital books as you can. Similarly, buy music digitally, scan your important notes, and go paperless as much as you can.

2. **Choose an airline**
   As an academic nomad, you will be flying a lot. Pick an airline, and be loyal to them in return for getting miles. Mileage status will give you extra perks over time.

3. **Sort out your clutter**
   Unless you want to keep a room filled with boxes in your parents' house "until you get a tenured position in your home country", you might just need to sort through all your stuff and sell/throw out/recycle what no longer need.

4. **Identify a few items that you value**
   Even though the hard-core minimalists might disagree, I think it's perfectly OK to have a couple of items that you cling to, and that you use to make your new place truly feel like you home. I have a number of totally random items and a cat that I drag along with me wherever I go. These little things just make me feel more comfortable wherever I try to settle.

5. **Embrace the best of every country**
   Moving means being culture shocked. That's the plain truth. But in order to overcome the I-hate-this-place phase, you'll have to learn to see the best in every country. Go out and explore the natural beauty of your new place, visit local events, and try to bond with the locals. Before you know it, you'll miss yet another country.

6.4 FROM PHD STUDENT TO INDEPENDENT SCHOLAR

During your PhD, you might have your advisor's help and protection. He/she can give you ideas to further develop, tell you where to publish and which conferences to attend, and will teach you the ropes of research. But **once you graduate with your doctoral diploma, you are on your own**. You might benefit from your alma mater's protection if you decide to stay at the same institution, but for those of us who moved away after our PhD, it is time to grow up and become an independent scholar.

As an independent scholar, your peers will not see you as "the PhD student of Prof. Advisor". They will see you **Dr. Yourself, with your own field of expertise and your own network**.

To reach this position, you will need to establish yourself as a **researcher with a clear focus**. This clear focus does not mean that you have to focus on a single topic. On the contrary, within your area of study, you are encouraged to branch out: participate in projects within the industry, carry out desk research on tangentially related fields and broaden your scope.

To **develop your own network**, you need to attend conferences and industry events. Publishing helps as well, as you will typically be invited to review for the journal in which you published – this is another way to establish yourself as more of an authority in your field.

Here are a few tips:

1. **Collaborate with other institutions**
   While it is nice to keep working with the researchers and professors with whom you worked during your PhD, it is time to explore other horizons. This certainly does not mean you should burn your bridges with your alma mater, but it is time to broaden your scope. These new institutions may be situated somewhere else in the world, could be public research institutes or could be industry partners. To more varied your collaboration portfolio, the better.

2. **Outreach**
   You could consider outreach as a time-consuming fringe activity, but it is actually quite rewarding. Outreach can be blogging and tweeting about your research, volunteering for charities, or getting involved in student support groups and on-campus networks. Consider outreach as an opportunity to show to world the value of your research and how your work makes this world a better place.

3. **Write your own research proposals**
   It's time to establish what you are interested in working on, identify the needs in that regard, and turn these needs into research proposals. It can be frightening to start your very own line of research, as you might feel inexperienced, but once you get going, you will see how rewarding it is. Think about it: you can fully choose what you find interesting to work on, without having to explore ideas that might have been imposed onto you by your advisor.

4. **Become active in your research community**
   Review papers, participate in committees, publish your work, attend conferences – you know the drill, so do your part and volunteer to move your field forward. Showing up and working hard will show your peers that you are serious about your research field and willing to moving things forward.

5. **Read a lot**
   Keep a finger on the pulse of your field by reading recently published papers on a weekly basis. Try to set aside a few hours a week (I know it is hard, but it is necessary) to read recent publications. Follow the important journals in your field, and read them to get an overview of which topics are being explored, and who is working on what. Then identify the papers that are of particular interest for you, and read these in more detail.

6. **Pick your fights and carry them out**
   What are you fascinated by? Canalize your energy and devote time to the causes you care about. Pick your fights wisely – you can't carry all the worries in the world on your shoulders. Do you want to raise your voice on the way women are undervalued in academia? Would you prefer to put energy into the guidance of first-generation students?

7. **Develop your own writing voice**
   Practice makes perfect, and this is particularly true in academic writing. You could also say that practice develops your voice. You will notice that, as you gain more practice writing papers, and will receive less and less feedback from your co-authors, and you will start to feel comfortable writing about your research in an authoritative voice that is distinctly yours.

6.5 NAVIGATING RESPONSIBILITIES AS A YOUNG FACULTY MEMBER

Once you finish your PhD, you might think that the busiest period of your life and the largest project you'll ever do, are over. In a sense, that is absolutely true – especially because of the learning curve involved with a PhD. But, unless you join a large laboratory to work on a post-doc, chances are that you will be getting quite a different number of responsibilities once you get your first academic job after your PhD.

And there you are, fresh from the lab-bench, getting ready for a new challenge and trying not to get sucked in by academia's sometimes bitter surroundings. While in previous years your priority may have been crystal clear (to solve your research question), it might be more blurred once you get your first faculty position.

All of a sudden, there is research, teaching, outreach, service, and plenty of admin work in your job description. Not only may some of these new additions to your task list require a new skill set, they also require a different way of managing your time: you'll simultaneously need to move a whole number of projects forward.

1. **Use the urgent-important matrix to set your priorities**
   When you are confronted with a large number of tasks, it helps to first make a list of everything that is on your plate, and to then check which ones are urgent, and which ones are important. You'll end up with four categories:
   - Urgent and important: obviously, you need to work on these tasks
   - Not urgent but important: the tasks that are easily forgotten
   - Urgent but not important: visits, emails, phone calls, administration deadlines and more of what you wish you didn't need to do
   - Not urgent and not important: stop doing them – or just do them sparingly.If you start as a young faculty member, it is easy to let that "not urgent but important" category slip to the background. And this category has one red hot flashing name – Writing Papers. Don't postpone writing your articles. Don't think you can write an article in a few days or weeks, because you'll never find 8 hours in a day to work on it. Instead, have a planning to move your articles forward slowly but surely.

2. **Get a streamlined time management system**
   My current time management tools are Google Calendar and ToDoist, and I use a notebook and Evernote to capture ideas and make notes. I've started scheduling my time, pretty much to the minute, on a weekly basis, to know exactly what I need to be working on in a given week. I also make an overview of my tasks on a monthly basis, combined with a review of the past month. No loose ends and no tasks that remain behind. Figure out what works for you, and consistently use your system. Bonus tip: integrate your time and task management systems with the way you process email.

3. **Do a braindump when you need it**
   Even though all your tasks and appointments are in your calendar and on your to-do list, you may sometimes feel a mild to severe sense of panic when you picture what still needs to be done. That's when it's time for a braindump. You can either take a break and write about all the demands that are placed on you, or you can sit down and make a list of all you need to do, and then review what you are going to do and when you are going to do it.

4. **Use chunks of time to move projects forward**
   I've mentioned this before, but can't stress it enough: the times of sitting down for a couple of days in a row and cranking out a paper are over (unless you want to work through the night on a weekend). You can't pull that off a couple of days before a deadline anymore. It's time to gear up in terms of efficiency and being organized: plan two hours daily (or a few times a week) for a few weeks to move your writing forward. The same advice holds true for any (new) research project that you will be working on. And of course, you'll have to schedule in blocks to prepare your classes, grading, office hours etc. Leave enough buffer time between tasks, or you may feel "behind" all day. Experiment with your optimum chunks of time.

5. **Make smart choices**
   As you advance in your career, you'll be met with increasing opportunities. But at a certain point, you'll have to start saying no and learn to make smart choices. If your schedule is beyond packed, accepting to review a paper might not be the right choice. Sometimes, however, the exact opposite could be true: reviewing that paper might be just the right move. Do not forget one very important aspect: the joy of science. Don't reach the point where you start feeling suffocated by your to-do list and don't have time to fiddle around with ideas or play around in the lab. Stay true to yourself and what brings joy to your work and invest in those areas. They are your natural strengths, and will ultimately have a positive effect on your career.

6. **Set an ending time to your day**
   With an endless task list, you might feel as if the day is never long enough and you need to work until late. Stop that now. I learned this the hard way, and now I stop working at 6pm every day when working in Ecuador. For my short research-intensive month in the Netherlands I stay a bit later, but that's exceptional. When I'm in my regular routine, it's no later than 6pm: tomorrow is another day. I also try to set a digital curfew at 9pm to finish the day in a relaxed mode. Try it out, I'm pretty sure you'll sleep better.

7. **Take good care of yourself**
   Eat well, exercise, get enough sleep and go out for fresh air and sunshine (hello vitamine D!) It's so obvious, everybody's saying it, but you really need to start taking these things seriously if you want to see your productivity soar. It's all about feeling better and being more focused. If you currently are living on TV dinners, find yourself surfing the internet late at night and going to bed too late, or are out of breath after climbing a flight of stairs, do not despair. Just take it slowly, change one habit at a time and try to stick with it for 30 days before adding something new. You will slowly but surely notice the change and will never go back.

6.6 EFFICIENT TEACHING

Preparing, teaching and managing courses is a challenge if you still want to keep time available for research, writing papers, catching up with the literature, service commitments and more.

1. **Plan your lectures**
   Have an overview in the syllabus of what you'd like to teach in every course hour you've been allotted. Try to avoid vague descriptions of "I will cover topics X, Y and Z", without really knowing how deep you want to go into them. Having a schedule for the entire semester will help you prepare your classes. You will know how to limit the amount of material to prepare based on time. Your schedule can also work as a booster for your preparations – just like a good plan for a paper can give an impetus to your productivity.

2. **Plan class preparation time**
   It might sound very obvious, but if you teach a lecture, you also need time to prepare for it. The rule of thumb seems to be that you need about two to four hours to prepare each lecture hour. For new topics, you probably need very close to four hours for class preparation alone, not taking into account the time it takes to develop homework, exams and to grade. Since your classes probably run on a fixed schedule on a weekly basis, it can be very helpful to schedule your class preparation time with a weekly template.

3. **Plan time for grading**
   Preparing class might take quite some time, but this is also true for grading homework and exams. If you plan your week or month ahead, you can schedule time after homework due dates to grade it. I try to grade exams and homework within 24 hours of receiving it: I consider it good practice to provide prompt feedback to the students.

4. **Sort out the technical part before the semester**
   If you are going to play around with presentations on your laptop or tablet, it can be helpful to check the classroom in which you will be teaching in advance to see if everything is working. If you are going to use computer labs, make sure the computers have all the licences you need for teaching. If you are teaching a laboratory class, try to make sure you have all materials before the semester start.

5. **Find your best teaching schedule**
   If your university allows you to suggest class hours, it can be convenient to take your personal rhythm into account. My most productive hours are in the early morning, a time of the day I set aside for working out and writing my papers. After lunch, I typically get a little sleepy, and teaching at that time (and standing up and talking) is the perfect way to mitigate my post-food-coma. I would get way less work done if I'd spend that time behind my computer trying to solve some deep problems.

6. **Protect your data**
   As sad as it is, some students will go to great lengths to know exam questions or to change their grades behind your back. Keep an eye on your accounts and your data.

7. **Ask for a TA**
   If you can get a teaching assistant to supervise and grade exams, go for it. It always takes some effort to delegate work, but in the long run, having a TA can be a godsend. Once you know he/she is trustworthy, you can let go and trust him/her with work that might otherwise take up your precious research time (or, sometimes, unfortunately, the time you spend sitting in meetings).

8. **Do you really need to grade every homework assignment?**
   Ask yourself if you really need to grade every single piece of homework. I've known professors who simply write "1" if it's been submitted, "0" if it hasn't. I remember professors who would give us the solutions and let us grade our homework ourselves.

   I'm currently trying a combination between short assignments that requires students to sit down with their course book and work through something, which are graded based on submission ("1" or "0"), and longer assignments that I need to be fully revise.

9. **Highlight possible exam questions in the course book**
   One way to gather exam questions while preparing lectures is to highlight possible exam questions in the course book while reading it. Once you are at the point of preparing an exam, you can simply go through these highlights and notes about possible questions, and pick a number of questions.

10. **Print all your material at the semester start**
    I try to print and copy all material (homework assignments, syllabi, notes, homework solutions, additional material) at the very beginning of the semester, and then distribute it as the semester progresses. Especially if your university complicates the process of actual printing and copying by, for example, sending you to a copy center, it can save you quite some time if you do everything at once at the semester start.

Pro-tip: Don't be a perfectionist!

I still see a lot of room for improvement in my courses. I started teaching without fancy PowerPoint presentations. Slowly but surely my class preparation notes are turning into course presentations. I sometimes wish I could write my own course book, or at least a bundle with examples that the students can use as material to prepare for their exams. The reality is that I only have a given number of hours in the day, and that I will make these improvements and changes over the next few years. If you want everything perfectly prepared, you'll be spending way too much time preparing for one single lecture hour, and you'll be sick with exhaustion by the end of the semester.

6.7 HOW TO START UP A NEW LABORATORY

Here's a list of what to keep in mind when you develop your lab space:

1. **Get to know the local lab equipment providers**
   If you need to import test equipment from abroad, it can be helpful to get to know the brands that have a local representative. This representative can help you with equipment installation, regular maintenance and calibration, and trouble-shooting of any issues you may have with the equipment. A good technical representative can help you with all that.

2. **It's OK to start small…**
   Unless you have managed to secure a large budget for your laboratory development, chances are that you'll have to start small and take time to develop the entire space. I'm currently housed in a space that only represents 10% of the floor space I need, but it is something, and we use the space and equipment we have to its fullest.

3. **…but make sure you get results with a small lab to notify the authorities of its importance**
   As long as I don't have a big lab floor, I can't continue the experimental research I want to do. But that doesn't mean I'm just going to sit in a corner and wait until I finally have the space I need. The space our department currently has, is what I've been using for teaching, for giving space to the students who competed in the national and international concrete competition, and for thesis projects. We've had excellent results with our small space: our students won the national competition and ended up second in the international competition. And these results have not gone unnoticed by the university's authorities.

4. **Get help**
   Hire a lab assistant and/or a technician. If you're on the tenure track and need to publish, teach, carry out research and more, then you simply don't have the time to run to the store whenever you need to.

5. **Plan stages**
   You could walk into the university and ask for a million dollars, but what are the changes of that working? I was asked to subdivide the laboratory's development into stages, and to focus on the most urgent needs first. We're way behind on the original plan, but at least we are producing results, and I keep pushing to realize the next stages.

6. **Involve your students**
   The more people you involve, the more enthusiasm there will be for your laboratory. By now, our small space is almost always full of people and bubbling with activity.

7. **Get professional affiliations**
   See if your lab can become tied to a professional organization, set up a student chapter of a professional organization, or organize certification exams in your new lab. You'll be able to leave your ivory tower, involve more local practitioners into your lab, and build a stronger reputation.

8. **Ask for donations**
   Ask producers for material or even used laboratory equipment donations. Whatever you are given for free helps, of course, and you'd be surprised how often companies are willing to give a small donation to universities for educational purposes.

9. **Dream big**
   Last but not least: pour your heart and soul into your laboratory's development and dream big. The civil engineering laboratory of USFQ officially opened in November, and we've organized the national concrete competition, won it, reached second place in the international competition, are doing some interesting undergraduate research projects, have started a student chapter of the American Concrete Institute – and all from an abandoned greenhouse on campus. This success not only makes us proud, but also motivates us to keep working towards a better and larger laboratory.

6.8 HOW TO OUTLINE A SEMESTER PLAN

1. **Outline your major goals for the semester**
   Before you go into all the details about your semester, take a break and ask yourself: What are the five most important things to do this semester?

Once you have outlined these five tasks, try to identify when during the semester you will work on each project/task.

Will you work a few hours a week on each project, to make sure all projects move forward at the same pace?
Will you tackle one project at a time?

2. **Create a weekly plan**
   Now that you have the big tasks of your semester identified, try to fit them into a weekly schedule.

   The elements that you need to fit in are (among others):

   - teaching
   - class preparation
   - research
   - writing papers
   - wreading papers/keeping up with the output in your field
   - faculty responsibilities (such as directing a lab)

- service on committees and other regular meetings
- office hours
- time to reply to emails
- admin time

Once you have identified your building bricks, you can start to construct your semester's framework. First, think of how many hours a week you are willing to work. 30? 40? 50? I don't recommend that you plan to work more than 60 hours a week, because your brain needs to refresh and refocus from time to time. Then, distribute the hours that you have over the different categories.

Typically, your time can be divided along the following categories:

- teaching: the number of hours you are actually in class
- class preparation: two hours for one hour of class if it's a course you've taught before; four if it is a new course
- research: a few chunks of two hours throughout the week
- writing papers: at least one hour a day
- reading papers / keeping up with the output in your field: at least twice a week for one hour
- faculty responsibilities (such as directing a lab): at least three times a week for one hour
- service on committees and other regular meetings: as scheduled
- office hours: depends on your university guidelines
- time to reply emails: about one hour per day
- admin time: half an hour a day

3. **Create a semester plan**
   Here are a few things to identify:

   - When will assignments be due, and when will you take midterms?
   - What are your important self-imposed deadlines for your research?
   - What are good times throughout the semester to follow up with (international) collaborators?

   Have these elements sorted, and add them to your plan.

   You will see that, as the semester progresses, your weekly schedule will serve as a guide, but it shouldn't be a terribly rigid plan. You are able and allowed to move things around if necessary. Similarly, you can identify weeks where your schedule might be disrupted because of conferences or other special events. Make sure you already build these elements into your semester schedule.

4. **Plan personal activities**
   Don't forget to plan activities that you find important into your weekly and semester schedule.

   On a weekly basis, you might think of planning time for workouts, social activities, date nights and other "regular" activities that you will want to do repeatedly during the semester. Make time for them, and put them in your plan. You will feel much better if you arrange quality time for yourself, rather repeatedly just lying around the house after work.

   Then, on a semester basis, plan out a few enjoyable things you want to do. It's OK to spend an entire week-end working, if necessary, but don't do so the entire semester – you might want to have something to look forward to on a shorter notice. Decide what you want to do with your semester breaks: working on a paper, and driving out to the mountains for a hike are good options. Sleeping in, "trying to write, replying emails and watching TV less so.

5. **Focus**
   Now that you have your schedule figured it, it's time to get to work. Or at least, ideally. In reality, social media platforms, news, food, games, your phone, puppy and mother-in-law all want your attention. So remember your Big Rocks of the semester, and focus on them.

   You will feel more successful working on a difficult task with a few breaks for coffee and walks than if you try to work for a short while and procrastinate on social media.

   Focus, focus, focus – try to think of what you will remember of this semester in two or five years from now.

6. **Reward yourself**
   Working hard also means patting yourself on the back. No one will do it for you.

   Finished a paper on time? Go get a massage.
   Submitted your research proposal? Head to the beach for a weekend.
   Graded all those exams? Time for a movie.
   Got a paper accepted? Go out to dinner and celebrate.

   Life is to be enjoyed – and as academics, we're often too hard on ourselves. So take good care of yourself, and welcome a bit of sparkle into your semester. This bit of magic will make your semester so much more balanced and enjoyable.

6.9 DEEP WORK

Regardless of where you are in your academic career, finding time and space for deep work is essential to move your research forward.

So how can we make sure that, with in the jungle of responsibilities we have, we can do our deep work – the deep thinking that actually moves our research forward, the very core of advancing our field?

1. **Block periods of time for deep work**
   If you don't schedule it, it is not going to happen. Since I have quite a number of different tasks, combined with a heavy teaching load, I make a weekly template for my semester, and make sure I block at least ten hours a week for research. Those hours are then subdivided into time for writing papers, reading papers, and doing the actual research. While these hours are limited, I block them off in my calendar, and protect them for dear life.

2. **Make sure everything you need is on your desk**
   If you have made time for your hour of deep thinking (or more time, if you can), then make sure you have everything on your desk you need. Get all the research papers you need, take a pencil and paper, take your data, and then toss out everything you don't need. Mute your phone and stash it in a drawer, move your laptop to the side, and focus on the essentials.

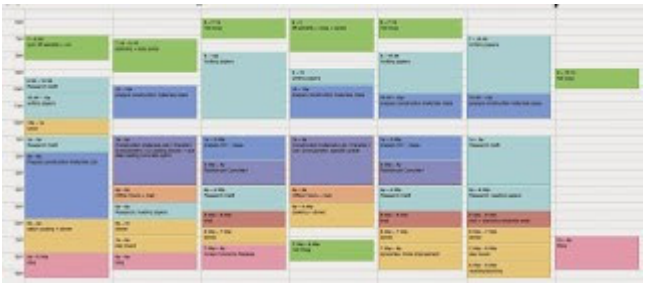
   Having everything ready on your desk is an excellent way to avoid having to leave your desk to search for a book. Similarly, clearing away all distractions sets the tone for a block of time of uninterrupted, deep work.

3. **Take it step by step**
   Don't sit down with pen and paper thinking you will once and for all solve the mystery of the meaning of life and the universe. Break your research question down into smaller steps. See where you can push the boundaries of what you know, and start exploring from there. Question the boundary conditions of what you read and the assumptions of standing theories, and explore bit by bit.

4. **Hang into the discomfort**
   Deep work can be deeply satisfying and rewarding, but it is not a means for instant gratification. You only reap the rewards after a time of friction and discomfort. Don't give up when you feel that discomfort starts to arise. Don't listen to those inner voices that tell you that you will never be able to solve the problem. Take it slowly, one step at a time, and suddenly you will feel that the gears in your head spinning again.

5. **Start small, and reward yourself**
   If you are not used to remaining uncomfortable and doing deep work, you might want to start small, and build up your focus muscle. You won't be able to sit in monk-like concentration for eight hours straight if you are used to multitasking and rushing around campus. However, challenge yourself to start small – say, 25 minutes at first. If you manage to concentrate on the problem for 25 minutes, then pat yourself on the back, eat your favorite food for lunch or promise yourself a glass of wine and a good read that evening. Learn to hang into that discomfort, and reward yourself later on.

6.10 YOUR ACADEMIC SCHEDULE



This is my schedule. As you can see, I code my tasks by color.

- Green = sports
- Light blue = research
- Yellow = personal time
- Dark Blue = Class preparation
- Indigo = Class
- Pink = Blog scheduling
- Orange = Office Hours
- Red = email and appointments

This weekly template is the basis for my weekly planning. I keep track of my tasks in ToDoist, and every Friday evening (as you can see in my template), I sit down to review what work I accomplished during the week, and what needs to be done, per category, on a weekly basis. I fill in the boxes with the specific tasks that await me (using up only 75% of my allotted time, so I have enough buffer to catch up).

6.11 WHAT I WISH I'D KNOWN

With a few semester of teaching behind me, there are a number of things I wish I knew when I started out as a professor.

1. **Slowly move your papers forward**
   Even with a heavy teaching load, the most important aspect of your academic life is still your publications. If you did not get to write the papers from your dissertation during your post-doc, you need to do it while getting settled into a new job, new university and maybe even a new country. Try to carve out at least two blocks of two hours every week to work on your papers.

2. **Prioritize**
   Important: writing papers, research projects, preparing for classes, lab setup, technical committee work.

Not important: email, meetings, review requests.

Learn how to set up an urgent/important matrix, and prioritize. Learn to accept that, as long as things move forward, you are making progress.

3. **Make self-care a priority**
   If you have a lot on your plate, you risk getting sick if you don't take proper care of yourself. Having more work to do does not mean inflating your working hours: this will not make you more productive. Cut down on the dead-end tasks and focus on what really matters – and yes, you are what matters.

4. **Tell others when you need time to arrange paperwork**
   If you are one of the few foreigners in a given university, your colleagues might not be aware of how difficult immigrating was. Tell your colleagues when you need to go and sit in a government institution for yet another entire afternoon. Explain how complicated simple things can be for foreigners. Ask them to give you a little break when you're in the middle of sorting things out.

5. **Go into hiding**
   Set up a home office, and work from home. I use two early-morning blocks of time for writing my papers, or doing research-related work. When I need to concentrate, I make sure I can't be found. Yes, this attitude might sound selfish, but you have work to do and need to learn to be ruthless: if you want things to move forward, then take that time off from being available to colleagues and students and work from home.

6. **Minimum preparation**
   Having class notes is enough. There's no need to develop notes and slides and a handbook and examples and everything in one single semester. I developed the basic notes in my first semester, and from then on have been focusing on a single course each semester that I am improving. These improvements might include the development of additional examples or making slides instead of writing everything on the whiteboard.

7. **Take matters into your own hands**
   Need a lab? Start making a proposal, and once you have permission, start bugging every single person to make things happen. You can't just send a document to somebody and expect them to get back to you. You have to continuously remind people to look at your proposal, to ask for money even though you might have received the approval, and follow up with the budget flow as much as you can. If possible, hire a lab assistant right when the first equipment starts to arrive – you simply won't have enough time to do everything so you need to learn to delegate.

8. **Keep reading papers**
   Whatever happens, reading papers is very important to keep up with your field's recent developments. I'm currently trying to schedule two blocks of one hour every week to read papers, and I plan in advance what I need to read. The time spent supervising exams is also a great window. Remember that reading sparks creativity – learn to read papers, hunting for possible thesis ideas that might help your research.

9. **Set up a grading system**
   Don't fret too much over how you will grade exams. I simply subdivide every answer into steps, each with an assigned number of points. If a student reaches a certain step in the answer, he/she might get the points up to that step of the answer. Just sum the points, and move on. Grade per question, not per exam – this technique helps you to keep in mind what the previous student wrote and how many points you are taking off for standard mistakes (such as: missing units, calculation errors).

6.12 SELF-CARE IN ACADEMIA

Here's a list of activities for which I make and take time to prevent me from turning into a bookworm:

1. **Exercise**
   Lack of exercise can make you more tired, less focused and less likely to sleep well.

2. **Music**
   Whether you listen to or play music, it can help your creativity.

3. **Creativity**
   Finding time to engage in creative exercises is important for researchers: you need the ability to think outside the box when coming up with novel solutions in your research.

4. **Learning**
   Learning new skills and broadening your understanding of this world is not only important for your personal development, but helps you make links between disciplines and teaches you to study research problems from a different angle.

5. **Writing**
   Maintaining a blog forces you to show up and write, even if you don't feel like it. Sometimes, that's where the magic happens.

6. **Gaming**
   It might not benefit your research, but if you need to switch off your brain, it's good to get engrossed in a faraway quest.

7. **Cooking**
   Preparing your food in advance and always keeping it on you makes sure you have the right fuel for the day.

8. **Meditation**
   Meditation is as important for your mind as exercise is for your body. Make sure you sleep enough as well in order to recharge your batteries.

9. **Reading**
   This also helps your mind, fuels your creativity, and improves your writing.

8 YOUR NEXT STEP IN EXCELLENCE: FINDING A JOB

If you are looking for a job as a researcher or in academia, the Netherlands has a lot to offer. You can find all research related jobs or positions in academia in the Netherlands on the job board AcademicTransfer.

Ready for your next step in excellence? AcademicTransfer enables you to build your scientific career.

Finding relevant jobs

Start your search by browsing through all jobs, entering a search string, or searching for employers in our employer listing, or refine your search results by adding extra criteria in an advanced search, such as academic field, salary or occupation. But of course, you can also start by sitting back and reading the following tips for your job hunt:

8.1 5 TIPS FOR JOB SEEKERS

1. **Broaden your perspective**
   It is tempting to search through AcademicTransfer using only one search term. If your doctoral research was on the breeding habits of the Brown Striped Fruit Fly, perhaps you are hoping to find vacancies with 'fruit fly' in the job description. It makes more sense to first expand your field, for example to 'biology', and then refine your search accordingly. You will be amazed at the interesting vacancies that would not have caught your eye otherwise. Another tip: instead of only using nouns associated with a specific job, try entering verbs that reflect your soft skills and competencies, such as collaborating, explaining, brainstorming, organising, listening, or presenting. Want to bet that this will open up a whole new world of intriguing vacancies that you normally never would have imagined?

2. **Let us do the work**
   Checking AcademicTransfer every day to see whether that one fantastic job vacancy has finally been posted is fine, of course! However, we want to lighten your load. It is easy to create an email alert for every search term: you will be the first to receive an email when a vacancy containing the search term appears. The vacancy that is not listed today could very well arrive tomorrow! And you will be automatically kept in the loop.

3. **Focus on your motivation**
   Obviously, knowledge and expertise matter. Obviously, your experience counts. Obviously, that means a lot. But still. In practice many recruiters like to read an authentic motivation statement. Why are you specifically choosing them, this company, this exact job? Remember to include all of this within the first three sentences! You will significantly increase your chances compared to candidates who neglect to do so and who may have similar qualities.

4. **Research your new job**
   Do some serious homework on your potential new employer. You can really find out a lot about the vacancy, the employer, the work culture, the latest developments in the sector and so forth using social media such as LinkedIn and Facebook, a faculty page, and the employer's 'Working at [Company/Organisation]' website. You are bound to find information that you can use to make a well-informed and convincing case in your letter of application.

5. **Apply today**
   On our website, we are happy to indicate the number of days you have left to apply. However, instances where employers decide that they 'already have a sufficient number of candidates due to overwhelming response' are much more common than you and we would imagine. In such cases, employers ask us to close a vacancy earlier than originally planned. What a shame for those candidates who had resolved to really and truly apply the next day: too late. This is why you should always respond as quickly as possible. Employers appreciate it; you make a good first impression, and run less risk of finding the vacancy abruptly closed.

6. **Extra tip: Help yourself by helping us**
   Share AcademicTransfer with friends and colleagues: the more qualified visitors we have, the more employers are willing to advertise on AcademicTransfer, all of which increases the future vacancy pool for you! Win-win-win :)

   Furthermore, here's another tip: do not hesitate to widen your horizon. Although they may be less likely to be associated with research or science, Universities of Applied Sciences offer great opportunities for a career as an academic, researcher, lecturer and more!

8.2 CAREERS IN APPLIED SCIENCES

Universities of Applied Sciences are less likely to be associated with research and science than Research Universities. However, Universities of Applied Sciences offer positions in research or for which a doctoral degree is required.

1. **Discover the possibilities in higher professional education**
   After earning your PhD, you are faced with an important decision: further your academic career or enter the business community or government? How about choosing a career at a university of applied sciences? Many (recent) PhD graduates do not consider the option of working at a university of applied sciences. Yet such universities have much to offer PhD graduates.

2. **The possibilities for PhD graduates**
   Universities of applied sciences are interested in both recent graduates and graduates with experience and an established network. Since universities of applied sciences place considerable focus on the link between education, research and entrepreneurship, there is a growing need for PhD graduates. The possibilities for these graduates are diverse:

3. **Lecturers and associate lecturers**
   Lecturers are the drivers of knowledge networks established in higher professional education around content-based themes. Lecturers are expected to not only have a PhD degree, but also a good (regional) network in their field. Associate lecturers, who also coordinate research in some knowledge networks, are often PhD graduates or in the process of earning their PhD.

4. **Staff positions**
   Policy officers, faculty directors, institute directors, and managers of knowledge centers are regularly responsible for budget decisions and research proposals.

5. **Associate professors, university professors and senior professors**
   Instructors responsible for taking the lead in their field and the development of educational content.

6. **Researchers**
   Positions with a strong focus on conducting practically-oriented research. Researchers are also involved in education.

7. **Professors in a Master's degree programs**
   Professors teaching a Master's program at a University of Applied Sciences are strongly advised to have a PhD. This is because the goal is for every professor to have an educational degree that is higher than the level at which he or she teaches. In other words, the Master's program at a university of applied sciences should only have professors with a PhD. This has not yet become customary in the current Master's programs offered at universities of applied sciences.

8. **Other tasks and positions**
   There are a number of other tasks and positions within universities of applied sciences for which a PhD degree is preferred. This includes supervisors for internal PhD students, graduation coordinators and those responsible or co-responsible for research lines in education programs.

ENDNOTES

1. Source: www.iamexpat.nl
2. Source: www.Euraxess.nl
3. www.netherlandsmission.org
4 www.iamexpat.nl