

Per vectum



FEATURING

- Goodbye Maastricht
- Horoscopes for Summer
- Hot Econometrician Summer
- Interview with Andre Berger
- Lunch Recommendations


vectum
Econometrics and
Operations Research

SUMMER EDITION • 2020-21



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WORD OF THE PRESIDENT

Dear fellow members, professors, partners,
and friends of our association,

Thank you for your interest in our quarterly
student magazine's fourth and final edition for
the 2020-2021 academic year.

Unfortunately, this past year will remain in memory mainly for the Coronavirus pandemic. Nevertheless, the Vectum community has made their greatest effort to keep Vectum afloat. In the end, we had a booming financial year, and we were able to introduce Vectum to first-year students and continue our weekly activities.

We started off period 5 with a poker night. Frederick took charge of the night, and after a brief introduction of how the game works, we were split up into groups, differing in difficulty levels. The night was a relative success, and it seemed like everyone enjoyed it. The following Tuesday, we enjoyed a sushi workshop from Alexander. Here we could create our very own Sushi from scratch. Next was the guest lecture in climate econometrics, organised by dr. Hande Karabiyik from the VU in Amsterdam. She talked about how we can use econometrics to try and solve some of the climate change questions governments and organisations might have, especially in the field of how climate change could affect the economy. The next activity was a CV workshop organised by the father of Alexander, namely Marcel Noordman. He showed us some tips and tricks on how a proper CV should look like and what keywords we can use to make it that much more professional. The following Tuesday activity was a movie night, where we used the chrome extension Netflix party to watch the same movie altogether, namely, Love and Monsters. The following activity was a business activity. Building Blocks cordially invited us to join them in solving an Escape Room. It was a great success, and we even got a gift box to enjoy during the activity. The final Tuesday activity of the year was the End of the Year Quiz, organised by the activities committee. Here we reminisce over the past year, and we quizzed the knowledge of fellow members. The final activity of the year was the first in-person activity, namely the end of the year BBQ. Finally, after a whole year behind the computer and zoom calls, we could see all our beloved members again in person while enjoying a BBQ at the StayOkay near the Maas.



Per Vectum Summer 2021

As the year has come to an end, we would like to thank everyone who helped us through this unprecedented year and made it ever so much more enjoyable. That is, we would like to thank all our members, the committees; Social Initiatives Committee, the External Affairs Committee, the PR Committee, and the activities committee. Additionally, we would like to thank all of our extra tutorial tutors for their help in developing and maintaining the first- and second-year courses. We want to thank all our sponsors for their contributions and help. A well-deserved thank you goes out to the KE department for their continued help. And a big thank you to the LOES, SCOPE board, the student representative Elif Karakurt and the university for finalising the transition agreement that was years in the making. And last but not least, a thank you to the fellow Vectum board members that made this year possible.

We wish the new board good luck in their adventure in the upcoming academic school year, and we have a strong belief in their potential to take the opportunity to rebuild Vectum stronger than ever before once the pandemic has finally subsided.



Sincerely yours,

Frederick Hagelstein & Joshua Vink*

President of the 2020-2021 Board of Vectum

Secretary & Deputy Vice President of the 2020-2021 Board of Vectum

*Due to Frederick contracting the COVID-19 virus, we worked on the word of the president together.

POKER NIGHT

Casino night, poker night, illegal gambling. There are many identities given to the annual Vectum poker, a regular occurrence. As with every event this year, that night took place online. Hosted by the knowledgeable and savvy Fred. Does the inclusion of election communication facilitate or hinder card counting and general cheating? Of course, we would never know. We are only interested in good and honest probabilities calculations. Flexing our skills as we would in any other sport, except now we are using our brains inside of our seldom-used bodies. Poker is a game of intelligence and streets smarts, as we learnt that night.

We thank Fred for the intuitive and entertains walkthrough of the game. We were able to separate into groups with respect to skill level and practice. Most went to the easier group, where fun was still had over zoom. Others, of course, spent time in a serious game of wits in the more difficult group. In both groups, the mood was bright and high.

These poker nights are, like many events, a grand tradition in Vectum. We are so grateful that this tradition was kept alive during these times. The PR committee hopes everyone had a fantastic time, and it is only more excited about next year in person Poker night. Thank you to our host Fred!



Poker Night

Texas Hold'em



Tuesday 20th of March
19:00 CET
On zoom

Guest Lecture

with dr. Hande Karabiyuk

Topics in Climate Econometrics

Be it snow in April or strangely high temperatures at the beginning of June. People are starting to feel the effects of climate change in their everyday lives. Dr. Hande Karabiyuk, from the Vrije Universiteit Amsterdam, spoke to us on how climate change can affect the economy and how we can use econometrics to try and solve this relationship.

Dr. Hande Karabiyuk first talked us through what exactly climate change is and the current state of affairs surrounding it. She did this by showing the global trend in CO₂ and the change in global land-ocean temperatures. Perhaps most importantly, she talked us through the responses from global leaders, and what kind of actions can be taken on a global level.

Before heading into the models, Dr. Hande Karabiyuk stressed the adverse effects of climate change are. She explained that global warming increases overall temperatures, which causes glaciers to melt and thus it would cause the oceanic waters to expand, resulting in rising sea levels. And as we are in the Netherlands, this would bring drastic consequences, as our fight against water is part of a centuries-old problem. And finally, climate change leads to an increase in the frequency and intensity of extreme weather events, such as coastal storms and droughts.

With finding out how climate change can affect our economy, we can ask ourselves a few questions, for example; What are the effects of global warming on productivity? What are the effects of extreme weather conditions on infrastructure? What are the effects of pollution on health care expenditures? And many more... With our econometrician's mindset, we can attempt to answer these questions. And with these answers, we can further understand the impact of climate change and put more emphasis on trying to find proper solutions before it is too late.



Lastly, Dr. Hande Karabiyuk guided us through a few models that were created for these questions. These models include a dynamic linear model, a model that allows for non-linear effects, a model for extreme weather events, a model where there is a feedback effect of economic growth on climate variables and finally a model that focuses on uncertainty.


All in all, it has become quite clear that with the use of econometrics, we are able to answer some complex and vague questions when dealing with climate change. Dr. Hande Karabiyuk has shown us ways in how one can model climate change and find what kind of effects it can have on our economy. These models will then enable and motivate politicians and global leaders to make the correct steps to ensure that climate change does not take the best of us. And that Maastricht won't be located near a beach anytime soon.

Climate change and mitigation policies

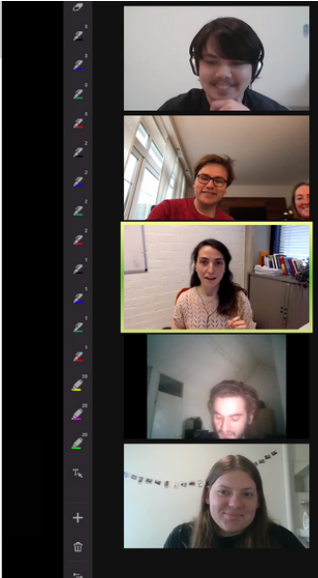
In 2016, Paris agreement was signed by the United Nations Framework Convention on Climate Change (UNFCCC) member countries. This agreement's goal is to keep the increase in global average temperatures under 2°C above pre-industrial levels and to make efforts to limit the increase to 1.5°C.

Question: What convinced these 195 state bodies to sign this agreement?

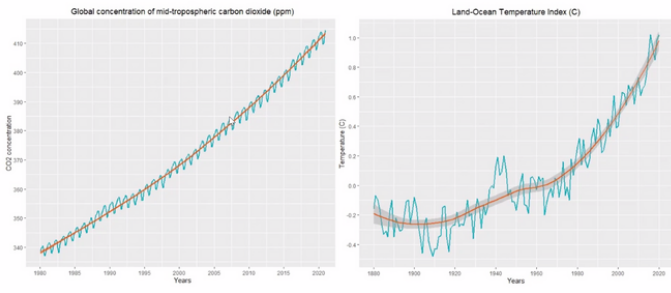
Answer:



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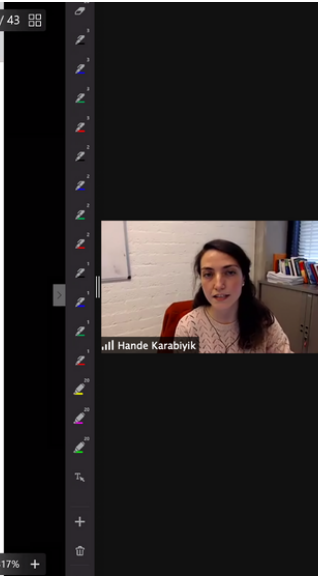


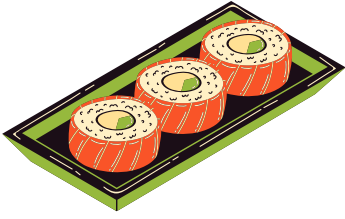
Climate change



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- Left panel is the time-series of the CO₂ concentration in the atmosphere between the years 1980 - 2020.
- Right panel is the time-series of the global land-ocean temperature anomaly with respect to the 1940-1950 average between the years 1880 - 2020.





Sushi Workshop



Sushi is one of the most common “types” of food on the delivery app Thuisbezorgd. It is a healthy and delicious dish, yet it is not a super cheap option, especially when you want to get super full. Knowing that struggle, our treasurer Alex hosted the sushi workshop on Tuesday, 27th of April.

Although it happened to be on the same day as King’s Day, we still gathered together in front of the computer screen to join Alex’s workshop. Before the workshop started, we all needed to prepare the rice so the workshop would not take too long. Being an Asian, I personally have cooked rice thousands of times and surprisingly, this time, I failed. My rice turned out to be too watery, and therefore it was a bit messy. However, after mixing up the rice with vinegar and salt and letting it rest for a bit, the rice turned out to be better, and we started rolling.

They see me rollin...

But this time, no one was hating. We followed Alex’s instruction: putting enough rice on a nori sheet and spreading it evenly. The key point here is to put just the right amount of rice. If you put in way too much, the roll will be huge, and there will be not enough fillings. Yet, if there is not enough rice, everything will fall out, and there will not be any sushi roll for you. We struggled a bit for the first few rolls, but of course, with our big brains, we finally succeeded. The sushi fillings can be adjusted to your diet. If you are up to some fusion sushi, adding cream cheese as the instruction could be a nice idea. I made some tofu, avocado and mango rolls, and they all turned out to be fantastic.

We ended our lovely evening with a small walk around the city to enjoy the rest of King’s Day, and also, we needed to walk a bit since everyone was so full after all the sushi. Thank you Alex, for the helpful workshop, and I hope everyone knows how to make acceptable sushi now!



MOVIE NIGHT

On one lovely Tuesday evening, we gathered online to watch a movie on TeleParty while still seeing each other's faces through Zoom. In the beginning, we had to take a vote between "Mitchell vs. the Machines", "Love and Monsters" and "The White Tiger" with "Love and Monsters" winning at the end. Initially, I was sad "The White Tiger" lost, and it did take me some time to warm up to the movie, but when that happened, I could see that it's a pretty decent adventure film with some eye-candy to look at.

The movie tells the story of a handsome guy who has to learn how to survive in a post-apocalyptic world where cold-blooded animals have gone through a mutation and have become massive. Human civilization is now hiding from them in bunkers. The main character, Joel, decides to take a difficult journey to where his girlfriend is, a girlfriend he hasn't seen since the mutation began. He makes friends along the way who teach him survival skills he very much needs. True to all apocalyptic movies, he befriends a dog that follows him along. The interaction of the two might be the best part of the movie. In addition, the CGI of the monsters is pretty decent. I'm not going to share more than that, as I don't want to spoil potential viewers. All in all, it's a movie worth checking out.

A couple of people kept the Teleparty chat alive, which helped brighten the mood and reminded us that we are not watching the movie on our own. After the movie ended, we discussed it briefly and then moved on to play a couple of online games, adding up to a very enjoyable evening.

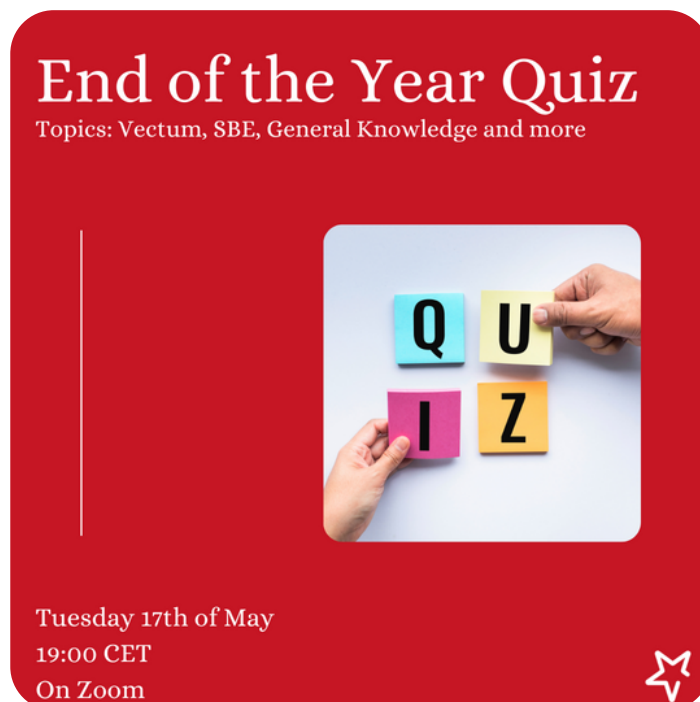


End of the year quiz


Vectum loves a good quiz, and a Vectum Quiz night is always a spicy event. We love to break out our general knowledge in the name of the end of night bragging rights and intellectual prowess. COVID-19 has brought us all many challenges. Although I am hesitant to call this particular case a challenge, organising, our well-loved quiz nights has also seen its fair share of difficulties.

Answers were presented by almost everyone with speed and accuracy. Impressive efforts, as always, were made. Possibly because of the extra high stakes of it being the final quiz of the year. The last opportunity to seize glory. The last chance to exhort dominance over our fellow members. The final shot to show your superiority. It has been an interesting year of zoom quiz. I think we have really enjoyed them as a group. Despite this, next year, I hope we are all in person so we can exert superiority face to face.


I genuinely commend Aisja et al. on creating an entertaining Kahoot quiz through the mental fog that is another zoom call. It ran smoothly and professionally, major props to the host.



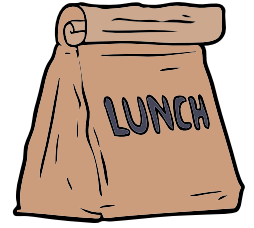
End of the Year Quiz
Topics: Vectum, SBE, General Knowledge and more



Tuesday 17th of May
19:00 CET
On Zoom



Lunch Recommendations in Maastricht



After a whole morning working in the library, a nice place to grab lunch and take a (huge) break is always an excellent idea. In this article, we will give you some recommendations we have handpicked. These spots were selected based on some basic criteria:

- Location: Fairly close to the inner city library and city centre.
- Price: Student-friendly.
- Quality: Tasty nomnom 😊

I would like to thank an anonymous friend who has joined my adventure, finding the best lunch spots that are close to the library. Having a (huge) lunch break together really helped me mentally get through the thesis period.

- **Cato by Cato**

This is probably the most famous lunch place around the library. During lunchtime, it is not hard to spot a person with a box from Cato by Cato. The line waiting outside sometimes can be insanely long. Why is this place so popular then? First, the price is so reasonable. For 4€, you can have a decent lunch. They also provide a wide variety of choices. Moreover, this place is vegan-friendly. The menu can be found on their Instagram story and changes every day, ranging from lentils peanut sauce to Indian curry bulgur. The owner is really friendly and always seems to be enthusiastic about his food.

There are two sizes of box for you to choose from. However, only select the big box if you are starving since the small box is already very filling for a meal.

Opening time: Monday - Saturday: 11.30-19.30

Sunday: Closed

Location: Stenenbrug 9A



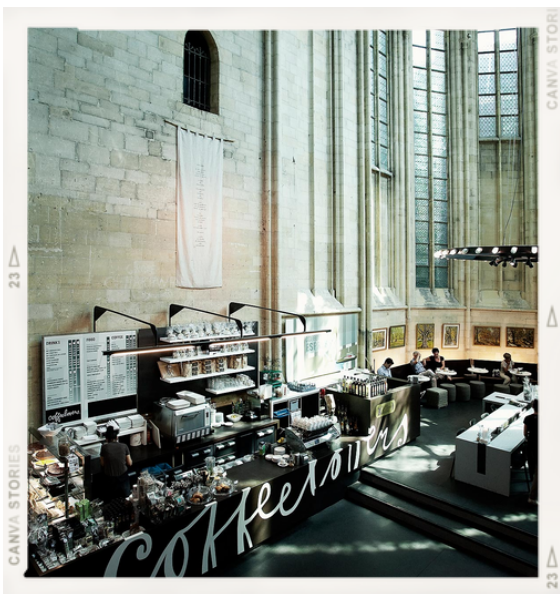
- **Bread & More:**

From the name, you can all guess this place focuses mostly on sandwiches and bread. They have many options for you to opt for: panini, baguette, wrap, etc. with different kinds of fillings. This place has a lot of vegan/vegetarian options. You can also order a smoothie or juice from this place.

Opening time: Monday - Friday: 10.00 - 16.00

Saturday & Sunday: Closed

Location: Kapoenstraat 22



- **Coffeelovers:**

In Maastricht, we say no to Starbucks. Instead, we have Coffeelovers. Around the Inner City Library, there are at least 3 shops. Although this is a coffee place, you can still grab some quick snacks for lunch. The goodies from their bakery are tasty, and they always have seasonal drinks.

Opening time: Depends on the location.

Location: Bonnefantenstraat 2

Plein 1992 77

Dominicanerkerkstraat 1

- **Bagels & Beans:**

If you feel like having lunch somewhere on the other side of the river, Bagels & Beans is a nice choice. The food here is claimed to be organic and always newly made. They have different kinds of bagels, bread and fillings. You will always be able to find something that suits your diet/taste. This place is also ideal for studying, in case you want to change the working environment.

Opening time: Everyday 8.30 - 17.30

Location: Wycker Brugstraat 31



- **SAP Bagel & Juice:**

If there is any day when you just want to take a huge lunch break and temporarily forget all the work and deadlines, you can visit SAP. Almost all of the dishes here are gluten free, and they have plenty of vegan options. The tempeh here is one of the best tempeh we have tried so far. Moreover, in 2020, the restaurant was nominated as the best lunchroom in Maastricht and got the prize.

Opening time: Monday & Wednesday - Sunday: 10.00 - 16.00

Tuesday: Closed

Location: Markt 15



- **Preps:**

Located in the city centre, Preps is, however, quite a hidden place. This is a quiet cafe right next to the hassle shopping street. On the menu, you can find a lot of healthy options for breakfast or lunch. We tried the smoothies, smoothie bowl and falafel here and everything was so good. The place is decorated with pastel colour so they look pretty Instagram-able.

Opening time: Everyday 9.00-17.00

Location: Mariastraat 6A

- **Deli-Belge:**

This sandwich shop is located right on Tongersestraat so it is very popular with SBE students. All the ingredients are newly made every day and you can see them prepare your food by the counter. The menu is pretty extensive so whatever your diet is, you can always find something here.

Opening time: Weekday 8.30 - 18.00

Weekend: Closed

Location: Tongersestraat 44



Hot Econometrician Summer

How excited are we for the summer? You may have seen some phrases lately 'hot girl summer', 'hot mom summer'. At Vectum, we know where it is really at. We know one needs to have a Hot Econometric Summer to have a really good time. The PR committee has compiled the following steps in order to achieve this state of being

Step 1:

Find a nice cool place where you can read your academic summer reading in peace. There's nothing worse than having the academic literature you've been saving all year interrupted by summer who doesn't share your keen interest in quantitative studies.

Step 2:

Wear a lot of sunscreen. Regardless of how much time you spend indoors, the UVB/UVA rays are stronger during the summer. You can't concentrate on hard sums if you're sunburnt.

Step 3:

Start your journey into the world of Machine Learning. Machine learning is the study of computer algorithms that improve automatically through experience and by the use of data. Specifically, it benefits from a lot of data. Although the field varies in complexity, in practice, it is almost always computationally intensive. In general, you will find your computer having its own 'Hot girl summer' while running some of the well-known Machine Learning packages such as TensorFlow or Keras.

Step 4:

Start a hot debate with your fellow Econometric buddies from a safe distance, of course. Nobody wants the delta variant. Pick your favourite subject and research a topical talking point. A steamy debate with your peers will get you hot and bothered enough for the whole season.

Step 5:

Decide whether you are Bayesian from Frequentist with respect to statistical reasoning. The differences between the two frameworks come from the way the concept of probability itself is interpreted. Surely an important choice for any econometrician to make. Take some introspection for your Hot Econometric Summer.

Interview with Andre Berger

You might know him as your programming tutor or as the place to be to ask all your bachelor related questions. But Andre Berger is much more than that. A caring family man and a proud father of four. He tries to be as active as possible to help students or people in general who might have trouble reaching out. He listens and tries to understand everyone's perspective, which can be difficult at times, but he tries to take everything one step at a time and take challenges as they come. We wanted to know more about this empathic man, who always has the best for the Econometrics and Operations Research students. Hence we thought it would be interesting to have an interview with him.



Born in Berlin, Germany, he completed his High School diploma before going into civil service, which was still mandatory at the time. After thirteen years of studying and civil service, he began his double degree in computer science and mathematics when he was 21. Amid his studies, he applied for a study abroad in Atlanta, America, where he got accepted and eventually got offered a PhD position. During his PhD, he travelled a lot and finished his studies in 2006. After his PhD in combinatorial optimisation, he went back to Berlin to complete his post-doc and eventually, in 2008, he went to Maastricht. Funnily enough, he met Tjark Vredeveld in Berlin, who recommended that Andre go to the SBE for a position as an associate professor. At the SBE, he eventually became the EOR programme leader, and this is also where most of you know him from.

Andre is no stranger to moving; during his PhD in America, he had to move every 8 or so months, and back in Europe, he continuously moved as well. His current home is in Stolberg, where he has remained for the most extended period in his adult life. His four kids moved with him, two of whom were actually born in the US and one even in Maastricht.

He hung out with two or three other students when he was studying and shared most of his time with them. Primarily because in Germany you have more freedom in choosing your own courses, and these other students shared the same interests as him, and thus often choose the same courses.

I asked him what he was up to the last year. I was especially interested in what he was doing during the pandemic. Regarding his research in scheduling problems, algorithms and optimisation, not a lot has happened. Mainly because he was extremely busy with his job as the leader of the EOR programme, and the addition of the exchange being cancelled didn't make it any easier on him. Apart from that, he is also part of the parent council at his children's school, and he plays regular sports, such as beach volleyball and the gym. Apart from the well-known strolls around the block, he hasn't taken up any new things during the pandemic.

Andre is a well-known face in Vectum as well. He mentioned that he has always liked the ambition and the passion people have in Vectum and that he gladly joins activities if they suit his schedule and hobbies. That is why he sometimes joins us for beach volleyball.

I wanted to try and figure out what Andre really stands for, so I asked him some more personal questions. First, I asked what he values most in life. Andre never really thinks about such questions and that one should just try and live an honest life while helping other people. He mentioned that he doesn't like thinking outside of the box; instead, why not get rid of the box as a whole.

After a busy and sometimes grim year, I asked him what he looks forward to the most in the upcoming years. He was the most excited about going back to the university and try out the hybrid teaching that is planned for us; then we come back. He likes to try new things and sees this as a unique and exciting challenge. He is also excited to find new synergies with the new study programmes, business engineering and business analytics.

About to round off the interview, I asked him one final question, whether he had any advice for first year and last year students. For the first-year students, he recommended being as social as possible. This is not only fun, but it boosts your academics as well, as you can then communicate more easily with fellow peers about course-related matters. With shameless self-promotion, he recommended first years to join vectum events, as you can then also come into contact with future years who can share their wisdom on how to pass a course or share general knowledge. For the students about to leave university, he advised that you try new options or go in different directions. As for the last couple of years, you only experienced the world of EOR, but the world is not limited to that. You can do so much more; he recommended you travel, go someplace international, or do something that you have found interesting but have not yet tried out.

All in all, Andre Berger is a kind-hearted man who has the best out for everyone. You can go to him for advice on your studies, or just for a friendly casual chat. We hope you got to know Andre a bit better with this interview, and we hope that we have answered all your questions surrounding Andre.

Goodbye Maastricht

End of my time at Vectum

It has been three years. Three years that went by as fast as a skill period. More than two years since we got the famous umbrella speech by Ton in that big lecture hall, with the stained glass windows reminiscing of the time the SBE building still was a monastery. On my first day at UM, in typical fashion, I found myself in a lecture hall full of business students, prompting a late arrival at Janssen's Linear Algebra lecture in the magical Aula. The personal and charmingly clunky tutorials presented fabulously by Ton made me feel a bit more at home at that time.



In one of the first weeks of university, I found myself quite homesick. I vividly remember reading a student article writing about how this student time had come to an end so quickly. At the start, she couldn't have imagined Maastricht growing so close to her. She described a sense of common spirit, having battled the fearsome bachelor thesis with her friends. She talked about slowly but surely growing more in love with a city that didn't seem to catch her at first sight. A story I could relate to.

And what a few years it has been. I've heard people coin the term "Covid-generation", but I feel like this doesn't do right to what it was for us. Sure, our studies got shaken up like no Maastricht student has had their study shaken up in the last two generations. But still, there is so much value in the connections made here and the academic honours achieved within that time. Often, complaints about online education buzz around parties, buses, or other student-ridden locations. And true, I get that, and I deeply miss that human connection of going to uni, attending activities, and just having a laugh after tutorial sessions. But I have so much admiration for the way education adapted so quickly. All the professors, even the ones a bit less familiar with modern technology, did their utmost best to help us progress in our lives, avoid delays. After three years, you get to know the professors, and you see more and more of their genuine efforts to make this place as outstanding as it is. It is easy to take for granted the small-scale nature of the university. The KE department really is something else.

I always get a bit nauseous from the word "networking", but retroactively, I even did a bit of that. Much of my network, however, is so much more than a link between two persons. Maastricht and its international nature have shown me that it's possible to build a stable living anywhere around the world. The thought of living abroad was always planted in my head, but now it belongs to the most probable of paths in life I'll take.

I was always - and still am - impressed by the thought of working together in a group with people coming from so many different backgrounds; I told my homefront about collaborating with people from Poland, France, Germany, the Netherlands, Zimbabwe or Vietnam. It made me appreciate the more subtle, inclusive and collaborative nature of discussion formed by this international environment. There really is no university experience in the Netherlands quite like Maastricht.

I've seen a lot of faces in my time here. Some of them I've met once, others won a place in my heart, and I'm sure we'll have many more memories to come. For now, I wish all those who are finishing up their university stories the best in whatever path their life follows after this. For the ones who still have the luck to start (again) this time studying EOR at Maastricht university, I wish you all the luck exploring all the opportunities, and I hope that this city will grow home to you as much as it did to me.



HOROSCOPES FOR SUMMER 2021

Summer 2021 is finally here and is looking a lot more promising than its predecessor, the year we shall not speak of. After intensive research, our team has compiled the best tips for what you should expect according to your rising sign (ascendant). Rising sign describes which zodiac constellation that was on the Eastern horizon as you were born. For that you'd need to ask your mom or guardian on the exact time of your birth. Ascendants change signs approximately every 2 and a half hours so you have some room for error.

Aries rising

Hot girl summer

Your energy and spontaneity will lead to an exciting and memorable summer. Don't run away when you encounter something new and instead decide to follow through. Venus would be transiting your 5th house which means you'd find playful love this summer. You'd have the opportunity to reassess your friend's group as well.

TAURUS RISING

Introspective girl summer

There are many changes facing your day-to-day life. The full moon in Aquarius is going to illuminate your career house, coupled with Jupiter retrograde going back into Aquarius will lead you to reflect on your future career path and what's going to bring satisfaction. Serving the common good, remember, you don't need to have all of the answers right now. Moreover, any trips (physical or not) you undertake this summer will amount to being positive.

GEMINI RISING

Healthy girl summer

You might have had a difficult time during the past Mercury Retrograde along with the other mutable risings, however, now good times are ahead. Venus, Mars and eventually the sun would transit your third house of self-expression in the warm sign of Leo. You can make positive changes this summer as long as you believe it.

HOROSCOPES FOR SUMMER 2021

Cancer rising

Stressed girl summer

You might be struggling with concerns of money or personal belongings. Have faith in the long-term and the skills your degree has developed. Relationships can develop you in a positive manner as long as you open up your shell and allow yourself to be vulnerable. Your intense emotions mean to show you what matters to you.

Leo rising

Healing girl summer

One of the better ascendants. This is a great time to focus on your personal goals and to find satisfaction in your work. With Venus conjuncting your ascendant, you might be interested in experimenting with your self-expression. Contrary to your initial instinct, you might discover inner harmony through solitude.

Virgo rising

Self-analysing girl summer

As you are so set on your ways, following your rules might only lead to the carpet being pulled beneath your feet. Take it as an opportunity to grow. Your rules are only so rigid because you don't feel comfortable in them. Nevertheless, Saturn and Jupiter retrograde will be transiting your 6th house making it the perfect time to analyse your daily routines, habits and day jobs and construct a reality that works for you.

LIBRA RISING

Fruity girl summer

You are fabulous but you should realise your self-worth comes from within. Stop chasing situationships if the purpose is to feel fulfilled and acknowledged. You'd have an exciting social life and a promising career ahead of you.

HOROSCOPES FOR SUMMER 2021

SCORPIO RISING

Sexy girl summer

A good ascendant portraying a magnetic and mysterious character. The past year might have been turbulent for you but good times are ahead, especially with Mars and Venus transiting your 10th and 11th house. Expect an exciting summer with an adventurous love interest. The new moon in Leo on the 8th of August is going to be the new beginning that you need, giving you wholesome confidence for the next steps in your career.

Sagittarius rising

Traveling girl summer

This is the perfect time for you, with restrictions being lifted to feed your adventurous spirit. Because you don't like being tied down, thinking about your career can seem daunting, however, you'd have Mercury conjuncting Mars in Virgo making it a good time to make any decisions related to your professional life.

Capricorn rising

Studious girl summer

This summer might not be the most exciting one for you, but that's okay because you'd have ample time to further develop your skills. You might reconnect with an old friend.

AQUARIUS RISING

Twirling girl summer

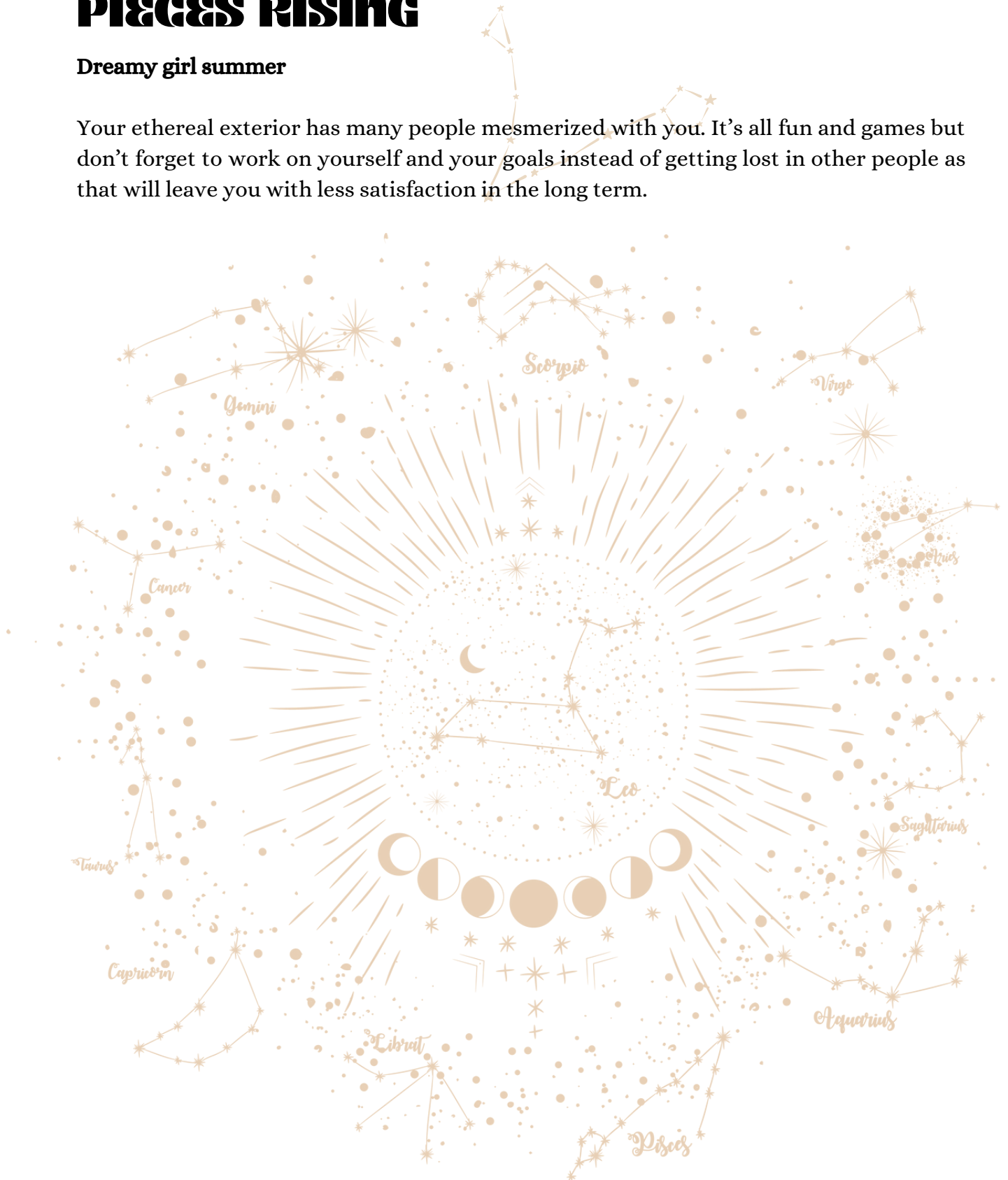
You had a tumultuous time these past few months with many of the transits and retrogrades affecting you. Sadly, it might not be over for you just yet. You can witness the release of past doubts and your old self with the coming two full Moons in your sign in July and August and then with the help of Jupiter that will be retrograding in Aquarius, you'd be able to reconstruct the way you approach yourself and others in a more healthy manner.

HOROSCOPES FOR SUMMER 2021

PIECES RISING

Dreamy girl summer

Your ethereal exterior has many people mesmerized with you. It's all fun and games but don't forget to work on yourself and your goals instead of getting lost in other people as that will leave you with less satisfaction in the long term.



Memes

The game done changed



[Redacted] 3rd+
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Updated CAPM formula.

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f) + \text{🚀}$$

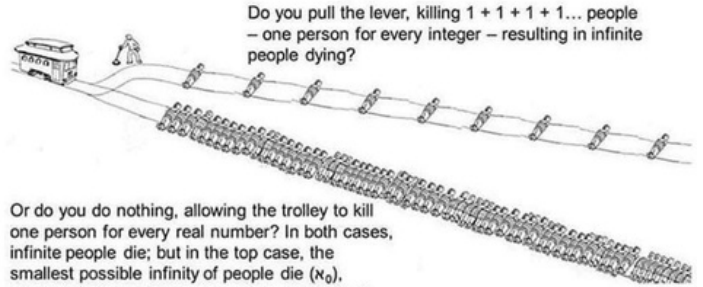
$E(R_i)$ = capital asset expected return

R_f = risk-free rate of interest

β_i = sensitivity

$E(R_m)$ = expected return of the market

= expected Reddit enthusiasm



Do you pull the lever, killing $1 + 1 + 1 + 1 \dots$ people – one person for every integer – resulting in infinite people dying?

Or do you do nothing, allowing the trolley to kill one person for every real number? In both cases, infinite people die; but in the top case, the smallest possible infinity of people die (\aleph_0), whereas in the bottom case, a larger infinity of people die (some infinities are bigger than other infinities). What do you do?

VEGAS IS A LINEAR SUBSPACE OF AMERICA SINCE WHAT HAPPENS IN VEGAS, STAYS IN VEGAS.

Gender isn't a spectrum.

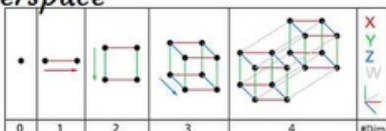


Its more of a GALAXY.



NO!

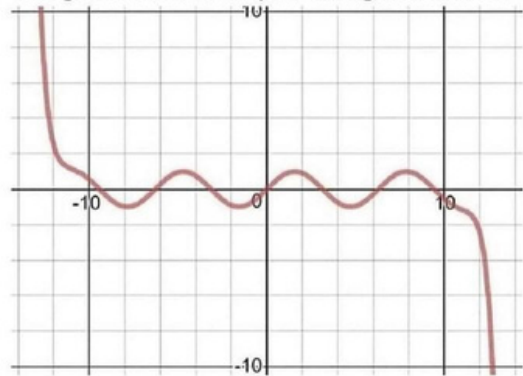
Gender is an n -dimensional hyperspace



so... you thought this was an ordinary sine graph



but guess what..... you thought WRONG!



This message was brought to you by the Taylor Series gang

