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Special thanks to Student and University Relations and Edie Steinhoff for contributions to content and printing.

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PAYDIRT

Interview With President Wells
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Midterm Season
October 12th, 2020



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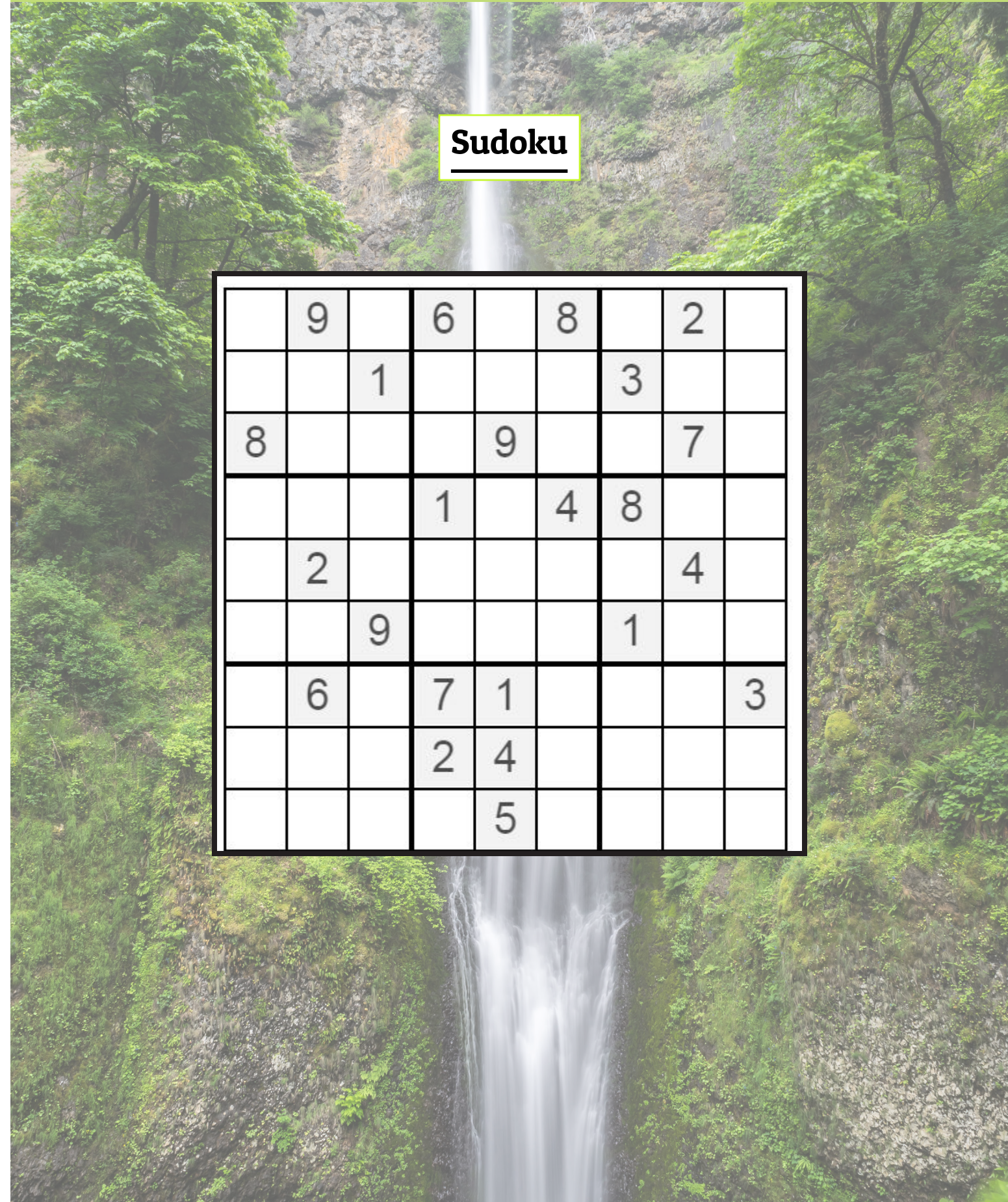
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Relax and Unwind

"I like to be quiet and play guitar and just chill." -Post Malone



Sudoku

	9		6		8		2	
		1				3		
8				9			7	
			1		4	8		
	2						4	
		9				1		
	6		7	1				3
			2	4				
				5				

COVID-19 and Sports: Athletics in 2020

Let's face it: 2020 really didn't happen the way we'd all hoped thanks to COVID-19. Being cooped up inside with our families with nothing to do drove us all to some pretty crazy lengths trying to just do something. Thankfully, with the curve beginning to flatten now, sports have made something of a comeback and are slowly gaining traction once more.

When COVID-19 struck the United States, things moved slowly at first, before building up to a deafening tsunami of regulations, rules, and restrictions. 2020 was supposed to be a monumental year for sports; The Summer Olympics were supposed to have been held this year in Tokyo, the Major League Baseball 2020 All-Star Game was set for July 14th at the Dodgers Stadium in Los Angeles, and the world-famous Grand Slam tennis tournament held at Wimbledon was scheduled for April 1st. All of them were canceled, with the last for the first time ever since the end of World War II in 1945.

Now, as COVID-19 lets up and people begin to stream back to sporting events, what's changed? Quite a bit, as it turns out. The National Collegiate Athletic Association released a plan on September 22 which would postpone all 2020 Fall Championships until Spring 2021. This plan, which specifically affects men's and women's cross country, field hockey, men's and women's soccer, women's volleyball, and men's water polo, will reduce the competition brackets to 75% of their previous capacities and cause all championship and preliminary-round sites to be predetermined and limited in order to increase safety.

Moving on, college football is still high up in the air as the Power 5, the name given to the major college football organizations, have yet to put out any definitive response. The Big 10 organization has begun to move towards reconvening college football teams, which as of late has had schools such as University of Illinois (Champaign-Urbana), Michigan State, Penn State, Purdue, and Iowa State begin training once more for a new season, albeit with masks and frequent screenings. As recently as July 28th, reports have been circulating, with some amount of official confirmation, that the National Football League has been working with sports armor companies to create a new helmet which will combine face shields, face masks, and traditional football helmets to provide players with a new COVID-19 helmet, the wearing of which is reportedly highly encouraged

though not enforced.

Looking towards the bigger picture, the 2020 Summer Olympics were postponed until July 23rd of 2021, due to the obvious health and safety reasons. With the cancellation or postponement of many other famous sporting events, such as NASCAR's Miami 400, the Euro 2020 soccer championship, and the US Professional Golf Association Tour, a great deal of speculation has been aroused. The general consensus is that sports will eventually return to their former glory, of course, but at a long and drawn-out pace. For now, at least, most of the major events have simply been postponed, with most of the regularly scheduled sporting seasons being canceled until the Spring 2021 season.

Rest assured that sports will return both on a global and local scale. It will take a while, but major steps are being taken to ensure that sports fans and athletes can return to at least some semblance of their previous livelihoods. Until then, it is imperative that we all make sure to do our best to support the regulations put in place by our own local sports teams and organizations in order to bring sports fully back as soon as possible.

- Isaiah Padilla



SGA Meeting Rundown: 10/06/20

1. **NOTE: With the virus currently on campus, please make sure to use best practices when reading and sharing Paydirt to minimize the spread of COVID. Please keep in mind that articles are written many days before publishing.**
2. **If you are symptomatic and wish to get tested, it is requested that you sign up to get tested at the Socorro Department of Health instead of at the Macey Center. Student Affairs is looking for a club to host an event for Hispanic Heritage Month.**
3. **Standard Operating Procedures for several SGA offices are due next meeting (10/20). These will better outline each position's duties for the future.**
4. **The SGA now has a complete Supreme Court.**
5. **The next SGA election will be right before Thanksgiving.**
6. **49ers is high on the priority list, and SGA officials are doing everything they can to make it the best it can be with COVID.**
7. **Health screening is now taking place before every SGA meeting at Macey to help ensure safety.**
8. **Contact Skyler at paydirt@npe.nmt.edu if you are interested in being a host on the KTEK radio, or Jon at nmt.sga.satd@gmail.com if you are interested in being a DJ or Technician.**

Do you want to get rid of expired medications, but don't know what to do with them?



Stop by the NMTASAP Office on the second floor of Fidel Center to grab a free packet of DisposeRx.

Just add water and the DisposeRx to your pill bottle and shake. The pills will solidify into a harmless "blob" that can be thrown away.



Club Spotlight

"Martial arts is not about fighting; it's about building character." - Bo Bennett

Martial Arts Club

It's mid-semester, and with midterms and stresses piling up, you might find yourself needing a new outlet to work it all out. Good thing there's a NMT club that specializes in working out frustration in the best way possible, hitting things.

The NMT Martial Arts club typically teaches three disciplines, Brazilian Capoeira, Brazilian Jiu-Jitsu and a Kickboxing style with influences from Taekwondo. This year due to no-contact rules put in place for safety, the club is only teaching Brazilian Capoeira and Taekwondo influenced Kickboxing.

Brazilian Capoeira (cah-poh-yeh-ra) is a truly unique form of martial arts. The discipline, originating in Afro-Brazilian communities dating back to the 16th century, combines the elements of dance, acrobatics, music and fighting. Rather than a more stereotypical form of martial arts, Capoeira focuses on the flow of movement, interconnecting each move into a graceful but powerful art.

Beyond the art of Capoeira the club also focuses on Taekwondo influenced Kickboxing, honing in on upper-body striking and high, fast kicks. Taekwondo originated in Korea during the 1950s in order to unite the Korean army under a single style of martial arts. The club uses Taekwondo's fast movements and technique to train the member's in fast paced upper-body strikes and Taekwondo-style kicks.

Sparring and training within the martial arts requires dedication, perseverance and self-control. Although the discipline doesn't necessarily require a working knowledge on the physics of movement, it plays a role in every strike and kick. Whether you're sparring or training, your center of mass is critical in every move. Center of mass is the point within a

body where the respective positioning of the distributed mass comes to sum zero. Think about the point on a pen where you can balance it perfectly on the tip of your finger, that's its center of mass. As you move, your center of mass must change to ensure that you remain balanced but typically, your center of mass resides within the abdominal region. When sparring, you want to maintain your center of mass above your feet. If your opponent is able to move your center of mass away from your legs or vice versa, it's likely you'll be taken down.

Kicks and upper-body strikes, can be powerful and fast. Yet, without the use of momentum, these moves lose a significant amount of their speed and impact power. Momentum is mass dependent,

$$p=mv$$

When you go to strike, you usually have a weight-shift to help ensure that there is ample amount of mass within the move. This allows for not only the momentum of the arm or leg being used but also the momentum of the whole body.

Not only is Martial Arts a physical workout, it also works to condition the mind. Most disciplines have a set of philosophical tenets in which one is to live by. In taekwondo, these principles are courtesy, integrity, perseverance, self-control and indomitable spirit. With training under these tenets, practitioners are able to gain high self-awareness and derive spiritual wellness. Beyond just conditioning the mind, martial arts is a high-intensity exercise. Regular high-intensity exercise is linked to positive improvements in mental health, focus and sleep. "It's a really great relief," President Caleb Cheng says, "especially in a time where not much is really able to go on."

This year the club is more limited in their forms of training. Due to the onset of COVID-19, there is a strict no sparring rule and a mask policy. The club has worked hard to ensure that technique training can continue through "regular practices of striking drills and conditioning."

Martial Arts is a great way to work out some of your mid-semester frustrations all while getting you in shape. The club meets every Monday in Room 1 of the gym from 5pm to 7pm. All you need is clothes you can move in, a mask and a willingness to learn.

- Alexandra Sartori



first is the real shock one. I have a feeling we will have a few more, because it's here now, on campus. I would consider it an outbreak if we start doubling and tripling in numbers. If we start putting people in the hospital, or if it looks like something we can't manage, we'll go online. We've worked with local health organizations, like Presbyterian, and they [only] have 10 beds for COVID patients.

With the current cases on campus, what are your biggest anxieties now?

W: I think the anxiety that I have now is for people to not be complacent about the pandemic. It's still here. The anxiety I have is that we reach levels that affect teaching. The biggest challenge for the university is that universities bring people together, and here we are telling them to be apart. The challenge we face is providing an adequate quality of life for students on campus, and how the pandemic drives people away. You'll really see it in 49ers. No rugby, no M-Mountain climb.

What is 2021 and the general future looking like?

W: I need a crystal ball for that one! At minimum I hope we'll be doing what we're doing now, and hoping that we can do more like a normal semester. But people need to take this seriously. We'll never get out of this if we can't come together. Well be doing what we're doing right now, online/in-person. We want to work with students to keep the campus open so they can get their education. We will be putting out a health survey to take daily, incentivized with prizes. You are all engineers and scientists. You can weigh what it takes to be safe.

W: I crave to get out and talk to students. It's my pulse on the campus, and it means a lot to me.

Thanks to President Wells, I was informed about our situation here at NMT, and about what the goal is for the future. On an unrelated note, I was also able to view the plans for the upcoming Body and Mind Center, a massive remodel/addition to the campus. Special thanks to Vanessa Grain and the Office of the President for making this interview happen.

-Skyler Matteson



President Wells Weighs in on COVID-19

Last issue, I covered several of Tech departments' initial responses to COVID, initial plans, and current fears and challenges. The day after I wrote the article, we received word of the first COVID case at NMT, so needless to say, things have changed. Originally, I had planned to interview President Wells for that article, but the interview was delayed. That ended up being beneficial, as I was able to ask not only about the initial concern regarding COVID, but also the current state of NMT as a whole.

What was your original response to COVID, both personally and for NMT as a whole?

W: On a personal basis, my first thought was 'this is something we can handle.' I felt that with the proper medical advice and proper science we could get through it as a nation. I was pleased for the small community at NMT; I thought we might escape any outbreak here.

W: If it was here, I knew we had to do everything we could to prepare, both from a safety aspect and academic aspect, changing the educational nature of our campus on a dime.

What was your role in accommodation/reopening plans?

W: Everything has been a team effort, which is why we've

been so successful [in regards to COVID]. My role was to create a COVID-19 Task Force of representatives from all major elements on campus, except students, as I wanted them to focus on their academics. [The Task Force was created] to get all their ideas, from safety, academic, and connection aspects, to prep for the changes that were coming.

W: The reopening outlines were distributed to all the major elements, and they sent me their respective plans. We collectively put it together, after reviewing it multiple times by the Task Force. [Currently,] I lead the COVID-19 Task Force on weekly to bi-weekly meetings.

What was your biggest fear for NMT? What challenges did you think we would face?

W: I don't have a fear. As a scientist I have anxiety. I was anxious for the university. In terms of delivering a successful education to the students, so they could continue their academics successfully, that was my biggest concern. That was the first. The second was: how do we protect the campus as much as possible.

W: Even though we've now had 3 cases, I wouldn't consider it an outbreak at this point. It was bound to happen, and the



Professor Spotlight

"It's all about the vibes. That's why it's called 'Vibras' in Spanish." - J Balvin

A New Emphasis in the Spanish Department

Did you take a Spanish class in high school? Remember scurrying to translate everything through Google Translate to get your assignments done? Us too, but with a new face in the Spanish and Hispanic Studies department, you won't have to. Dr. Matt Johnson brings his passion and enthusiasm for teaching to every class, making Spanish seem like a breeze.

There's no better way to learn a language than to find yourself in a country that only speaks said language and like many college students, Dr. Johnson wanted to see the world. Having taken Spanish and Portuguese classes during his high school career, he discovered an interest in language learning. As he moved onto college at the University of Florida, he continued taking Spanish classes and was presented with an academic scholarship that allowed him to spend a semester in Santiago, Chile. Having such a positive experience with the semester in South America, Dr. Johnson decided that studying abroad was his collegiate future. He soon left for Cochabamba, Bolivia for a 2-month internship.

"Bolivia was the most exciting," Dr. Johnson said, having found himself in Bolivia during a critical time for their national government, the early months of 2005. It's likely that most students at NMT don't remember the political renewal of the Bolivian government at the time, given that most of us were in Elementary School. Yet, during the mid 2000's, Evo Morales, an indigenous activist, rose to prominence through his leadership of the Movement for Socialism (MAS) party.



Morales called for reforms within the government that would allow for the enactment of leftist policies and social programs, leading to him being the first Indigenous President. *"It was moving to see the popular support for Bolivia having, for the first time, a President...that represented the people of Bolivia in a way that previous Presidents could not."*

Having spent more time in Latin American countries such as Argentina, Dr. Johnson found more and more of a love for studying and teaching Latin and Hispanic Culture. He went on to obtain his PhD in Hispanic Literatures and has been teaching for the past 13 years.

"It's really been a pleasure to teach Spanish here in New Mexico, where the Spanish language and Hispanic culture are so much a part of the social fabric. That, coming from the Midwest, it's been

extremely exciting for me to delve into local and state history. Being able to read about and visit historic sites, not even an hour away

from here has been such a big experience. I think that in New Mexico we have such a unique blend of Indigenous, Hispanic and

Anglo cultures. In a way that it's a very exciting place to be a Spanish Professor."

Dr. Johnson looks to expand what NMT offers in terms of ways to further engage students with heritage in Hispanic and Latin cultures, looking to really emphasize the significance and importance for students to be able to connect with their culture. A great example is a class Dr. Johnson is teaching this semester, *"Latinx Literature and Culture."* He delves into understanding and learning about Chicano history and literature. Yet, while also lending focus to contemporary issues within the Chicano community. He also seeks to establish Spanish learning classes beyond the elementary level.

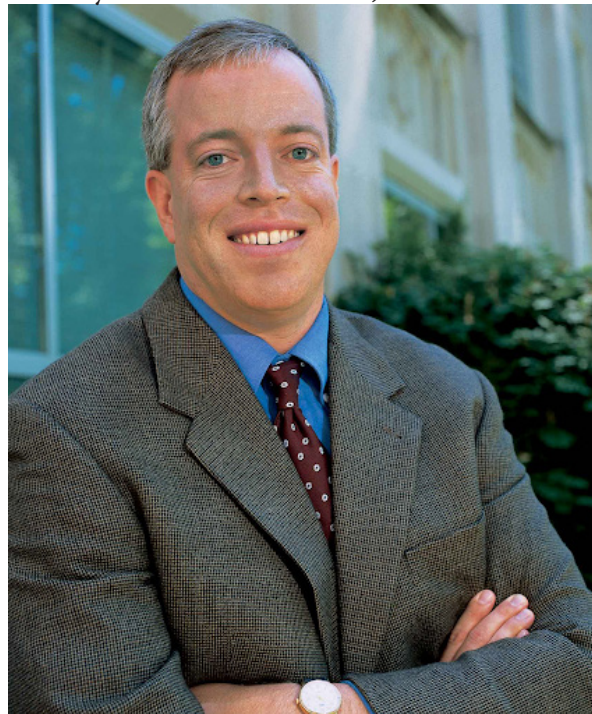
Taking a full semester of only STEM classes can be rough, being able to take classes within the Humanities and Languages allows for a little respite in the week. Be sure to be on the lookout for Dr. Johnson's classes in future semesters for your Spanish learning needs and to further your knowledge of the rich culture we live in.

- Alexandra Sartori

Biochem Seminar Analysis: for Dummies

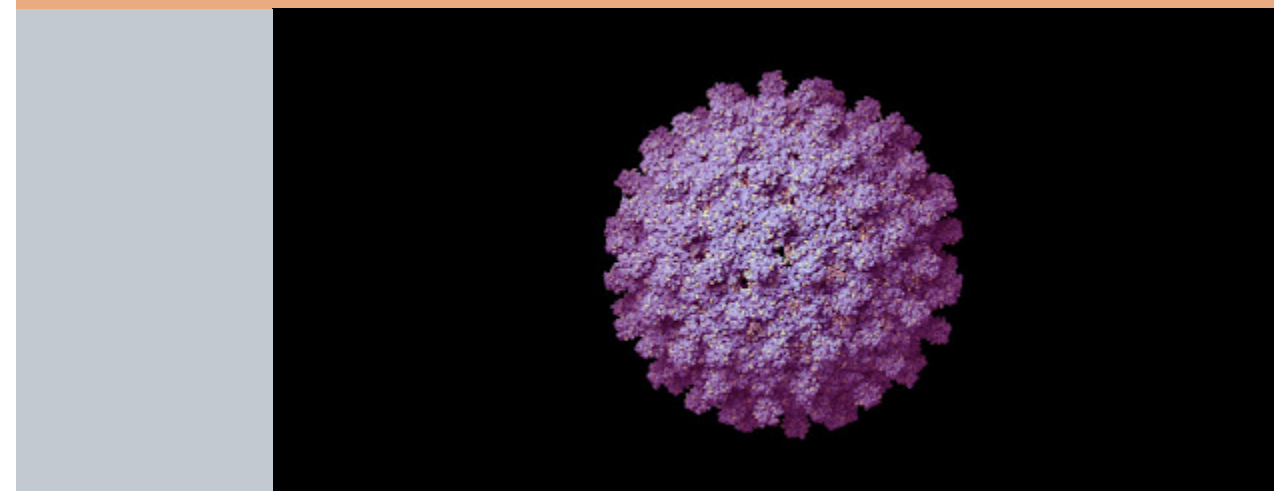
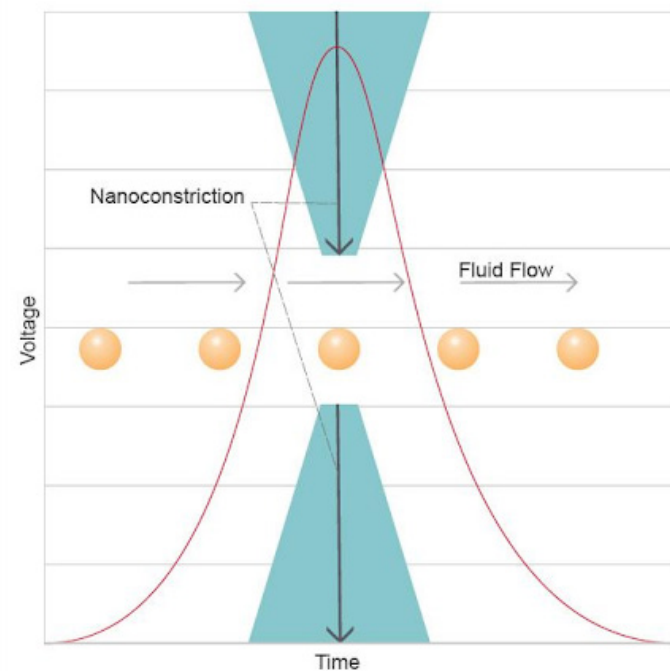
NMT offers a lot of really great opportunities for learning beyond your courses. One of the most exciting being seminars given by experts within a field. These seminars are free to attend and allow for insight into your field or a glimpse into a study you have an interest in. While these seminars are open to the NMT population, they're often geared towards graduate students and other professors or researchers within the field. This doesn't immediately seem like an issue, but it means that a lot of the vocabulary and topics are extremely high level and are taught as if the knowledge is basic information. This can have a tendency to dissuade lower classmen and some undergraduates from attending. On the other hand, this also allows for a unique opportunity for students to engage in a little personal research in order to decode these seminars.

I recently attended a seminar given by Dr. Stephen Jacobson of Indiana University, "Single-Particle Studies of Virus Capsid Assembly and Bacterial Development." As someone majoring in Geology and Geophysics, i.e. not anything related to Biology or Chemistry, I understood approximately three words of his title. Despite this ever so slight drawback, I still attended via Zoom. Dr. Jacobson gave an eloquent 1 hour lecture on his research and lab techniques and as hard as I tried to understand what he spoke of, I found myself lost. This was absolutely no reflection of Dr. Jacobson's seminar, he



gave an invigorating lecture on something he was clearly passionate about, unfortunately my grand knowledge of chemistry (General Chemistry I and, currently, about half of a semester of General Chemistry II) was not enough to fuel me through his discussion. I was fortunate enough to have recognized this was likely to happen, and decided to record the seminar for me to pick through later.

Dr. Jacobson's research consisted of studying the Hepatitis B Virus (HBV) through the development of micro- and nanofluidic devices. Micro- and nanofluidic devices sounded like an intimidating place to start my personal mini research project. Yet, without knowledge of these fluidic devices, I wouldn't have grasped much else beyond the first five minutes. Fluidics is the study of manipulating and controlling fluids in chambers on small devices. These controlled fluids tend to be on the scale from pL to μ L (10⁻¹²-10⁻⁶ liters) and the chambers are anywhere from 10 to 100 μ m (10⁻⁶-100⁻⁶ meters). Fluidics allowed Dr. Jacobson to work on a level to assess the single particles of HBV. Microfluidics is a great resource for researchers due to the increase in precision, decrease in time needed per experiment, and the lower cost of applications in comparison to other forms of research. Due to the large amount of advantages, the devices are commonly and casually referred to as "a lab on a chip."



With the ability to observe single particles of HBV, Dr. Jacobson needed a way to characterize the capsid assembly of the virus. Yes, I didn't know what a capsid was either. Capsids are the protein shell that surrounds a virus's genetic material. They develop as a virus replicates its genetic material. These capsids and their formation can hold important information for antiviral drug developers, allowing for medicine to be produced faster and more accurately.

To analyze the capsids of the HBV particles, Dr. Jacobson implored Resistive-Pulse Sensing (RPS). RPS is used for detecting and measuring individual particles within a fluid. This specific method was utilized due to the fact that more can be determined about a particle when on the individual level rather than on a bulk level. First, particles are suspended within an electronically conductive fluid, saline solutions are a great example. The fluid is divided into two containers that are connected by a constriction, where particles can flow through, one at a time. The two containers are outfitted with metal electrodes, biased with an electric potential, that allows an electrical current to flow through fluid from one side of the constriction to the other. As a particle moves through the constriction, the voltage produced from the electrodes drops and allows for information to be gathered, such as concentration and size. Dr. Jacobson used an RPS system that had multiple constrictions which allowed for more detailed and accurate information on the size of the virus.

The extreme sensitivity of RPS was utilized to monitor the formation of capsids while the HPV particle came into contact with different variables such as an antiviral drug or chaotropes. Chaotropes are molecules within a water based solution that disrupts the system of hydrogen

bonding between water molecules. Think chaos. This chaotropic entropy has the potential to change the standard structure of macromolecules such as proteins, which just happen to be what the capsids are made of. When the virus is exposed to these conditions, the capsid can mutate in a sense and create a new structure. Dr. Jacobson specifically used Guanidine Hydrochloride, GuHCl, a chaotrope. GuHCl "interferes when [the capsids] are forming but once they're formed it takes quite a high form of concentration to to disrupt [the assembly]."

Dr. Jacobson worked to study how the capsid formation would change in response to antiviral conditions. This topic of study is growing to be increasingly more important as we find viruses to be a bigger topic within our news stream. Viruses like HBV already have a vaccine but there are some that are infected before the chance to obtain the vaccine. Studying this allows for deeper understanding of antivirals that are able to impact the growth and stability of viruses within a human system.

Getting to attend Dr. Jacobson's seminar allowed for a mini research project that broadened my knowledge of a subject I had very little experience in. As a student, it's easy to get caught up in just my major and forget that STEM is a broad category with a multiplicity of fields to discover and learn from. If you find a seminar or an opportunity that resides outside of your major's field but you still find interesting, delve in deeper. You might just be able to learn something new.

- Alexandra Sartori