Lisa Baermann – Senior Director of Fund Development & Alumni Relations

Lisa Baermann: Welcome parents and friends. I'm excited to be with you today, sharing our masterclass. Masterclass was designed after meeting with several faculty members on Concordia fund projects. We realized that so many of our faculty are experts in their fields. They are scientists, authors, composers, and artists, who everyday bring these experiences and expertise to their classrooms working with our students. We can learn a lot from those people outside our walls, but we can learn a lot from those people inside our walls. Masterclass is a project designed just for you, our Concordia parents. We hope you enjoy it!

Lisa Baermann: Joel, thanks for taking time to talk with me today.

Joel Klammer – High School Science Teacher

Joel Klammer: My pleasure!

Lisa Baermann: We met just three years ago, but after meeting, we found out that we have a lot of places that are in common. Fermilab, HKIS, Concordia Chicago, Immanuel Lutheran Church of Grand Rapids Michigan.

Joel Klammer: It's true. It's surprising that we didn't cross paths earlier. I think we are just kept missing each other each time.

Lisa Baermann: Yeah, by couple years each time. So, there are so many things that we can talk about here. I'd like to try and focus on couple areas. Of course, many of our parents know you as a physics and engineering teacher. Can you share a bit about the classes that you teach here at Concordia?

Joel Klammer: Sure! As you mentioned already, engineering, which is a fun class because it's very much hands on, and my physics classes are AP Physics I, the introductory one, and AP Physics C, which is a calculus based one. And then the marine research class, actually happens outside of school.

Lisa Baermann: What's one of your favorite classes? Because they are so different, right?

Joel Klammer: If I like the mental challenge, I love AP Physics C. If I need my sort of relax and get down to engineering, it's engineering class. And for just playing getting out in the nature, the marine research class I just love. I left out AP Physics I, sorry, I love them, too!

Lisa Baermann: Would a student actually take AP Physics I and AP Physics C?

Joel Klammer: Yeah, it's usually a transition. They do AP Physics I first course, then they take the second one (AP Physics C) the next year. So it's a progression.

Lisa Baermann: What actually got you to Concordia Shanghai? What brought you here?

Joel Klammer: One of the former headmasters knew us from Hong Kong, and said “Hey, I’ve got this new school up here. It’s developing, and we have one and a half people on the science department. We’d like you to be the ‘one’.” We built it from scratch. In the first couple years, I taught everything. All the science, except for biology, and some math courses, too.

Lisa Baermann: You were really here from the start! There probably wasn’t really much of a high school before you got here.

Joel Klammer: No, it was fairly small at that point.

Lisa Baermann: What was it like living here in Jingqiao when you coming from Hong Kong? That had to be such a different experience.

Joel Klammer: For people who live in Jingqiao now, “oh we got so many restaurants, and all these deliveries.” When we first got here, you couldn’t even get a taxi. That was before Didi. So the housing compounds would keep some taxis waiting there. They would just pay them to stay there in case anyone would need to travel. And there was only one foreign restaurant we got here, Papa Johns, where the Starbucks is currently over here on Mingyue Road.

Lisa Baermann: So, no Jamaica Blue or Big Bamboo...

Joel Klammer: I so wish...

Lisa Baermann: No Da Marco...

Joel Klammer: No Da Marco. It was all pretty basic.

Lisa Baermann: Woah.

Joel Klammer: Carrefour was here.

Lisa Baermann: Ok. What did you think when you first come here?

Joel Klammer: We knew when we were coming into this. So, it was alright. We prepared us. We had Papa Johns the summer just before we arrived. So, we knew the menu.

[Laughs]

Lisa Baermann: Let’s go back to the science. Where do you think that your love of science came from?

Joel Klammer: Definitely, growing up I was exposed to quite a few things. Loved it in high school, found it incredibly challenging in university, and it was nice. I just love the teachers. I want to keep learning more about

that area. As I continued, I kept learning more. It's one of those areas where the knowledge just keeps expanding.

Lisa Baermann: How do you think your interest in science was nurtured?

Joel Klammer: My parents would make sure I had experiences. When I was four, they brought me an electronics' kit that was rated for twelve years old. And I loved it! Couldn't read the instructions, but I was just like, "huh, this looks fun, let's just try this and this and this." I managed to get things working. And having great teachers in high school and university. Just sort of that excitement and that drive.

Lisa Baermann: Did you go to Valley Lutheran High School?

Joel Klammer: I did. Valley Lutheran High School in Saginaw, Michigan.

Lisa Baermann: Well, that's kind of interesting, because then, I think, your first teaching position was in Valley Lutheran High School in Illinois.

Joel Klammer: Yes.

Lisa Baermann: So that brings us to after you graduated from Concordia Ann Arbor, and before you went to your graduate work at Colombia University, you were at Valley Lutheran as a teacher. How was that first teaching?

Joel Klammer: That was fun! It was enjoyable. I was young, and the students were very young. It was actually kind of fun. Those time you could definitely relate to the students. It was a fun time.

Lisa Baermann: Did you have any of the Laesch kids?

Joel Klammer: Yes. I have to tell you. My entire science department budget there was 300 US dollars for the entire year. Compared to here, I'm like, "how did I manage?" When we broke a beaker, it was a major trauma, "how can we afford this?" Yeah, it's very different.

Lisa Baermann: At that time, you went over to Fermilab, which was in Batavia. Let's just talk about Fermilab for a second. Fermilab is a national laboratory, with top physicists and engineers in the world. What was that experience like? What did you do there?

Joel Klammer: So, Fermilab at the time was at its exact peak. It was just the happening place for physicists in the world. They were accelerating protons and antiprotons (the antimatter equivalents), and colliding them, producing explosion that was larger than any other place in the world. And it was just hot, you go to their cafeteria, and you run into just like, "OH I KNOW THAT PHYSICIST!" "OH! I'VE READ THEIR PAPER!" "Oh! I've seen this!" It was literally, whatever table you sat on, there is

somebody famous there. Nobel prize winners. And it was incredibly well funded. Any toy that we could possibly think that we needed, we could get it. Like, “Oh, we need this.” “Ok! No worries. We’ve got it.” It was a buzz, where everything just happening at once. Discoveries were happening, just right and left. We gathered knowledge once a week to find out what new happened that week. It was amazing.

Lisa Baermann: It must’ve been exciting to be part of that kind of setting. And later on, the top quark was discovered there at Fermilab. How does that play into our understanding of physics today? And I think the Higgs Boson, which sometimes refer to as the God particle Just unpack that a little for me, if you can.

Joel Klammer: So, there’s a standard model of physics, where there are six quarks, six leptons, four force carriers, and the Higgs boson. Those 17 particles are everything that make up the universe. We knew six of the leptons, and we knew five of the quarks. We are fairly sure that the top quark existed, and when that was finally discovered with that proton and antiproton collider. That finish the chart. We knew that four force carriers, and then the only piece that was missing was the Higgs boson that was not there. It turns out that Fermilab’s accelerator was top of the line, but it wasn’t quite there yet. It wasn’t until CERN (European Organization for Nuclear Research) finished their LHC (**Large Hadron Collider**) later, that we actually found the Higgs Boson.

Lisa Baermann: Why do they refer to it as the God particle? What is it about that?

Joel Klammer: Leon Lederman, who wrote a book on it, the director of Fermilab. Great guy, by the way. He actually did not want to call it that. It was his book publisher said, “let’s change it that. It will draw a bigger crowd.” The idea is that it is the master particle that gives most of the other particle's mass, or at least part of their mass. So, without it, most of the particles shouldn’t have the mass they have. So, it’s sort of the master control for mass. That’s why they sometimes refer it as, the overarching particle of all the other ones.

Lisa Baermann: So, recently at Fermilab, there was a discovery, or observation that is contradictory to some past thinking. Can you unpack that a little bit for us?

Joel Klammer: Sure. One of the remarkable discoveries. So, after the large hadron collider, the LHC, was built, we thought, “Ok, we are going to see some new discoveries after the Higgs,” and then nothing. So, physicists start becoming a little desperate. Maybe this is it, or maybe there’s nothing new to be discovered. And the experiment at Fermilab is called the Muon G-2 experiment, was looking at the magnetic moment of muons, which was one of those 17 fundamental particles that make up the universe. And the magnetic moment should be 2.0023318 something. But this last digit, where if you take on the particles we know of, and how they would interact with the muon, that last digit should be some number. Well, the experiment just recently came up with a completely different number for that eighth digit. And that is why people suddenly are excited. They were like, “Maybe, there’s more to this particle theory than we actually realized.” And there may be new atoms, new particles, new force

that we haven't thought about yet. That's exciting.

Lisa Baermann: So, it really kind of turns what we've been thinking about science on its head and that we might not really know it all.

Joel Klammer: Right. The standard model predicts the 17 particles that we've already discovered. This may indicate or point to something more.

Lisa Baermann: Why do we keep studying science? And why is physics still relevant?

Lisa Baermann: As you mention, in addition to Fermilab, you have also spent time at CERN. So, you have really been in the two most influential scientific studying for physics. What is it like participating in that? How does that influence or impact your teaching here at Concordia?

Joel Klammer: It's certainly very much like Fermilab. Just a buzz of excitement, new discoveries happen all the time. Much were global audience. In terms how it effects things here, it's actually good. A lot of the students think, if they look at their physics textbook, that physics end with Newton. They think there's nothing else new. The fact that there's all the excitement going on. Currently, where we don't understand most of the universe. The particles in the universe we know are actually the visible part, and the other part is dark energy and dark matter, and we don't even know what those are made out of. So, most of the universe we don't understand. It's eye oping for our students, and it leads to excitement, "wait, this physicist is leading to something, and there's new discoveries to be made!" It's not a dead subject. We don't understand most of the universe.

Lisa Baermann: I think what you bring it is really the practical piece of benefit, what they would normally learn in the textbook. That makes it such a bigger thing for them. You really have one year of physics.

Joel Klammer: That's the whole thing we try to do. We do the Shanghai Particle Physics Masterclass for all the schools in China here, and it's one of the first time a lot of the students get to expose to the idea that "wait a second, physics is still got going. You are still making discoveries." They actually work with some of the data that prove the existence of the Higgs particle. So, they can learn that "we can do what a physicist is doing. This is the cutting edge! There's a lot of things we don't know yet!" So, that really motivates students. They start to see that "yeah, this is an exciting field."

Lisa Baermann: It could actually lead to a career.

Joel Klammer: It can lead to a career.

Lisa Baermann: I understand that you've met the most famous of all – Stephen Hawking. So, can you tell us a little about that?

Joel Klammer: He was doing a lecture in Fermilab, and this was already when he was in a wheelchair, using the computer voice, and at that point, he still had motion at his thumb, so can still select words on the computer screen with that. He had prerecorded his entire lecture on spacetime, but the part that was most intriguing was the question-and-answer session afterwards. It was intriguing and at the same time painful, because so many audiences would go up to the microphone and ask him questions, and then there would be a five-minute pause as he composed letter-by-letter, word-by-word the answer, which by five minutes later would come out of a speaker. You would really want to know the answer, and once in a while, somebody ask a not exciting question, you would like "oh no... and I have to wait five minutes for the answer for this one?"

Lisa Baermann: What do you find exciting today about physics?

Joel Klammer: The idea that we don't know half of what we known, and I think I have answered part of that already with the idea that we don't know what most of the universe are made out of. 68% is made of dark energy, which is making universe expand faster and faster. 27% is made out of the dark matter, which is the matter that we can't observe. We don't know what it is. Only 5% is made out of visible matter, the energy that we are familiar in every single day and life. You look out the window, and like "oh yeah, I understand the universe," and it's 95% of it we have no idea what's going on. That intrigues me. There's definitely other particle physics, and other physics going on that we just have no clue on.

Lisa Baermann: You are often sought after to present or lead conferences or seminars in the world of physics. How to you stay relevant today when you are spending a great amount of time in the classroom? How to you still stay up to date in this field?

Joel Klammer: It's great. Those conferences and presentations keep me or force me to keep up. But at the same time, if you find a job that is really the passion of yours, you naturally are just or constantly reading every single journal article, spending time with collogues on video conferences. The one thing we miss was not doing those in person. So, this year was all video connections, and honestly those are not as nearly gratifying as being with a group of students or teachers or researchers in the same space.

Lisa Baermann: We used to live across the street from Fermilab, and I said that kind of loosely because it's a huge place and so. And one of the things that's there is bison. Among farms and swimming pool, and so many other interesting things in the space that they kind of all brought up together to create the complex. But there is this herd of bison there, and when my kids were young, we go over there. What are bison doing in the rain? What are bison doing in the snow? But one thing I read recently is that they tested them for cattle DNA. They did not have the cattle DNA, but I'm not sure why that is significant. Do you know why?

Joel Klammer: Yeah. So, Robert Wilson, the original founder of Fermilab, decided, because it was all prairie land, he wanted to keep it as natural as possible, to bring in bison. So, he went out to various farm in the west and bought bison and brought them there to start a herd to keep down the natural grasses and have the

wildflowers grow, getting most of the accelerator underground, as you know. The part that was amazing with the DNA is that they are pure bison. Many of the bison in the US have cross bred with cattle over the years, because farmers don't just keep bison, or they don't just keep cattle. It was remarkable the fact, they bought these bison way before the DNA test, that they all happen to be pure bison from all the different farms that they bought from far west.

Lisa Baermann: That's interesting. Thank you for sharing that, because I did not understand that. And I do know that they have repopulated certain areas of the United States with these bison, original bison herd. My daughter took some classes at Fermilab, worked two summers there as an intern. So, I have had opportunities to hear scientists from every area of physics from Fermilab give an overview of their area, and there are like seven or nine something areas were there. And I was shocked when I found quantum physics just so fascinating, and I thought "gosh, I so wish that I found this earlier" because I would have pursued that. That was so fascinating to me. So, this is a parent question that in these things that you just don't ever come up against, how to your kids experiences that allow them to find out things that they never, normally ever, learn about?

Joel Klammer: I think, there are some ways to do it. There are some wonderful YouTube videos: particle-wave duality, double slits experiment, which are simple to understand, and can actually done in cartoon form, which introduces this idea of when you don't observe something, it takes all possible states, which is the basis of quantum mechanics. It sounds so anti-intuitive, but at the quantum level, this is the reality. If you can introduce them even then, just promote your students, "hey, you know, there are some wonderful people to speak to" that could do this. Some guest speakers you can bring in; some video conference you can join; some YouTube channels that bring those kinds of ideas down to an easier level. I try to do it every year at the end of the physics courses, and I always introduce quantum mechanics. Just because, as I always tell my students, you can't leave high school without seeing that there's more to it than what we've seen.

Lisa Baermann: I think that's a good advice. You don't think about that as a parent that YouTube videos really are kind of windows into a lot of areas, not limited to just physics but any type of things that we want them to get exposure to.

Joel Klammer: It used to be you have to find guest speakers and guest lecturers, but now, you can find wonderful channels which gather some of the best people together.

Lisa Baermann: It's so much more accessible to you! So interesting. You have been very instrumental in developing Concordia's robotics' program. Can you share a bit about that? And what you hope for the future here for robotics?

Joel Klammer: So we started the robotics program fairly early in the school, with the idea that it's one thing to learn about a topic in the classroom. But it's not everything to actually do it and have it work. It's ninety-nine percent perspiration and one percent inspiration. Somehow students always think that it's easy to

solve an equation, and now I'm going to build this robot, and it's going to work the first time. It's that idea of building resiliency and how to come back from failures. The robot never works the way you design it in the first time, and to come back and to rethink about it. And for some of our robots, advanced teams, they are working outside of the box. There are no blueprints, there are no plans. They have to see what is available, how can I reprogram this, how can I reuse other pieces of software to do what I need to do here. It really does force them to think beyond what they know, and there's a great growth area.

Lisa Baermann: Is robotics happening in the classroom, or is that as something after school?

Joel Klammer: It's a CCA, co-curriculum activity, happens after school. Several nights a week. Different teams meet in different days.

Lisa Baermann: What's happening now in robotics? What are some of the things that they are tackling?

Joel Klammer: So the underwater ROV, or remote operating vehicle team, they've got a claw to pick up things underwater. They are trying to get it to rotate. So, there are 3D printing plastic gear that they designed, and using a stepper motor, and they've got to put some bearings on it. So it can actually have some rotation, so we can twist things under water. And they are also working with machine learning, to recognize changes in images from the video camera, which is fairly advanced for robotics. And then the FTC is working on some grasper and elevator to lift some blocks up the high distances. These are fairly difficult challenges.

Lisa Baermann: What do you see next coming in robotics? For both our high school teams and just in general in the field.

Joel Klammer: Right. So for our high school teams, I think, AI with vision, you know, being able to identify things. Machine learning, learning how to fly. Working with great data, which is not real clear. And for us as people, I think robots really become more ubiquitous. They are going to be in every part of your life. Doing a small task, I think the little robots that vacuum your room is a start. I don't think they are going to take over the world any time soon, but I think they are going to be just much more common for those everyday small tasks.

Lisa Baermann: We were in Austria, couple summers ago, and on a farm, and they had two grass cutting robot machines. They are called Peter and Paul. Peter and Paul did the several acres, and then they went apart into their shed by the end of the day. It was pretty cool.

Joel Klammer: They are absolutely further ahead of we are.

Lisa Baermann: In general, what would you like to see happen next innovation at Concordia?

Joel Klammer: There quite a few areas. One of the ones is machine learning. It sounds ridiculous, but I think it is going to be one of the ways to the future, where our students need to understand what it is. It's the spreadsheets of the nineteenth seventies. It's the computer programing of the nineteenth eighties and nineteenth nineties. It's the big data of the two thousand. This is going to be machine learning. Maybe not to know how to program it, but understand how it works, and how it can be used. Because this can be used in every field you can think of right now in multiple ways, like in health care, marketing, medicine, and traffic control... Just everywhere.

Lisa Baermann: Can you explain a bit deeper what machine learning really is? What does that look like?

Joel Klammer: Machine learning really is intriguing in a lot of ways. Usually have some sort of input, and then you have a lot of notes, which are just basically points that take those inputs, and are connected to multiple other notes and other layers. For most of machine learning nowadays, most of the layers are hidden, we don't actually see them. We see the input layer and output layer, and somewhere in between there are magic happens. After you train them, just like in our brains, neurons develop pathways when you learn something, the mathematical connections between those notes get stronger reinforced when they do something right and get reduced when something is wrong. That's an oversimplified version, there's forward and backward propulsion for those notes. But we use it very much for recognition. We show it something like "what is this image?" The computer would say "that's a dog." How does it know that? It has seen lots of images of dogs. But it can be so much more than that. Just recently, a student here in Shanghai, he's machine learning to use X-rays and determine whether that person has bronchitis or covid, because it looks very similar to a doctor, but the machine learning can actually distinguish them accurately, which is remarkable.

Lisa Baermann: So that's what is happening downstairs at our gates.

Joel Klammer: Yes, so our facial recognition is machine learning. And nobody can really tell you what's happening in all the hidden layers, it's somewhat magical, but it's so much more than that, and I think it has applications in there. There's lot more we need to learn about it.

Lisa Baermann: I asked you to share your resume with me, and at the top, where most people place experience or education, you have a mission statement. I hope you don't mind if I read it.

"To serve all of God's people by sharing the love that Christ showed us."

How has having that focus impacted your teaching, your career, and life at Concordia?

Joel Klammer: It actually affected it in a lot of ways. When I was working in Fermilab, I had a marvelous corner office, with every single cool toy you could ever imagine at the time. Even then, I was working at a full time, and I still taught part time high school. I could never quite give that up. I remember feeling like, this is bringing greater purpose than all the research I'm doing in Fermilab. Yes, it's intriguing, yes, I love it, but changing high schoolers' lives makes a huge difference. It can make a difference in their lives, where they're heading, what they are doing. I knew then, we are called to be Christ's hands

and feet on this world, and I knew I need to be here. As much as I love that, I'll keep my feet in both places, but my heart and soul is going to be here in the classroom. And that's affecting everything I do.

Lisa Baermann: So as a person who has a faith and a belief in the creator, how does that work together with your belief in science? A lot of people say they are incompatible, but actually the scientists I all knew in Fermilab are all Christians.

Joel Klammer: I'll say, there are no atheists in the foxhole when you are under fire. The same thing is also true for scientists. For scientists, the more you look at the universe, and you see the complexity and elegant of the mathematics, you are like "Holy cow, there's got to be something behind this!" Or for the marine research ship, when I go dive in and look under water, and see the absolute beauty of the underwater world, the beauty of nature outside, the beauty of diversity in animal lives. There is no way I can go around it. It was Einstein who said something like "it's the role of art and science to awaken the religious feelings that you have." And that really is it. If you really understand what's going on behind there, you are like "wait, this beauty, this elegance can't be happened chance. There's got to be a God behind it."

Lisa Baermann: Once of the phrases that comes to my mind when I think of you is "servant leader." I don't know the whole 18 years of you here, but I know that during Covid, you were the person who came over here to water plants and fed all the animals. So they were still here when students came back to campus. When we need a hand washing station, and you help to design our own makeshift hands stations here. And I know just today, a big thing happened on campus. We removed all of the Plexiglass, barriers to our tables, and you said, "I want them."

Joel Klammer: I thought they would be thrown away, I'm like, "wait, we can use these for students' projects." And use one of the laser cutters to make something with them. They are sitting apart downstairs right now.

Lisa Baermann: So you have a vision for what's going to happen with that. There are some many things that we've just talked about, but I do think that you are such a model for our students and for our employees of that giving spirit and going beyond of the jobs here.

Joel Klammer: I think it goes back to the whole idea of being Christ's hands and feet, whenever you're called and wherever you see the needs. It doesn't matter when or where if you can find it and if you can help. It means you been call to at that point and at that time to do that thing. It can take you to exhaustion, but as long as you are connected to a God who's all powerful, there's no limits to what you can do.

Lisa Baermann: And it really gives purpose to sometimes those hard things that don't seems so meaningful to do.

Joel Klammer: Small things.

Lisa Baermann: There are so many honors and recognition and invitations that you have been a part of. It's hard to capture all, but I'm just going to read a couple of them, if you don't mind. And maybe at the end, you can share two that you really proud of, or can share a little bit about those. So, you've received a Masters from Columbia University, where you were also a fellow distinguished professor at the Dive Health Organization, speaker for countless conferences and seminars around the world, diving, physics, computer technology and STEM, Shanghai Medical Association, National Science Foundation, China Wide Particle Physics Masterclass, Collegeboard speaker, NASA Aerospace Institute, US Department of Energy and Research Associate, and Virtual Coordinate Center Member at Notre Dame. Lots of different stuff there! What is something that really brought your sense of accomplishment that you'd like to talk about?

Joel Klammer: So, that last one actually and ties with a few, mostly with all of the achievements. So, I'm a QuarkNet Large Hadron Collider Fellow through Notre Dame University. As part of that responsibility, I get to go out and travel around the world to various schools, and either work with the groups of teachers in that country or with students in that country. I get to talk about particle physics, a lot of things that we've been talking about. And I love it! I love working with fellow teachers and getting them excited. I love working with students in the other countries and getting them excited. Sometimes it's a dream when you try to travel all these places, but I absolutely love it. Just being with people is one of those things which bring me joy and seeing that excitement.

Lisa Baermann: Having those experiences and being able to bring them to the classroom for your students, it's just so meaningful. I understand there was a muon project here that you had students working on in conjunction with CERN, I think.

Joel Klammer: We still do. Actually, ironically, I have not planned at all, it's in the camera shot. It actually detects muon and cosmic rays from supernova. We assume that most of those cosmic rays are produced by supernova explosions or other very traumatic events, and we have a series of detectors just up here, and we leave this running 24 hours, seven days a week, and constantly takes data on the muon flex coming into this classroom. There's one detector here, and there's one detector in Beijing. Then a few scattered. There are a couple in Japan, few scatter around the world, and we are one of those monitor sites. So, it's exciting! So the students get to see that what's happening. Usually, we have a couple of students who were assigned the task of keeping it running.

Lisa Baermann: I know that there's another area that you are very passionate about, and you lead a class in here, and have really impacted a number of students, and I think, their careers. And that is marine research. Can you share a bit about that with us?

Joel Klammer: Sure! We have this since 15 years ago. We started the marine research project with Terry Umphenour, one of our teachers and myself. Now Jim Lyon, a current parent, is working on this. And we take a group of kids, and we train them during the school year for just cause. And we take them to Thailand to one of the reefs we research. And we do a five-year longitudinal study, which means we go back to

the exact same 100 meters segment of reef and take data there. In terms of the substrates, vertebrates, and the status of the coral, then we report this back. Now we are on the third reef, and the data has been used in the places we have never thought. Originally, we started this program. The professor Apple (not her real name, too complex), at a major University in Bangkok, who first approved this project, said, “I’m not sure if high school students can really do this.” And after she joined us the first two years, she’s like, “what data you have for me, I met an UN Conference. Give me your data for this year!” Literally calling us on the boat. It caused tremendous change. It’s been published. It’s been one of the key features of getting new marine preserve created in Thailand. And as you have said, several of the students who had been in that program have gone on in careers for marine research and marine conservation. So it has been phenomenal. I hope we can go back again. With Covid, we haven’t been able to do that for a while.

Lisa Baermann: What are some of the things you found in your five years study? So what are you seeing in terms of what’s happening in the reefs?

Joel Klammer: Unfortunately, right now, it’s not great news. All the resets change to “research “we have seen during the five years we got back, have seen considerable damage. We tried to find resets that are fairly far away from people so it not human damage. It’s really due to the climate, pollution, trash. We are now on our third reef, and the third reef is hours and hours away from anywhere, it’s on the middle of the ocean. We thought, “all good. We are not going to see any changes at all.” And even in those two years we’ve been there, there’s trash on it. We were like “oh my goodness. There’s trash even way out here, when we are hours and hours away from civilization.” It really is a wakeup call. For the students on the trip, we don’t even have to tell them. They were like, “what is going on?!" We were like, “yeah, this is what people were talking about. You are seeing it.” It does make a huge impact on their lives

Lisa Baermann: They really had that firsthand experience. Not only in understanding and learning about marine biology, but then also when they come back here, and they learn about the UN goals and the actions. In addition to diving, you’ve also been a scout leader, a soccer coach, a church elder, ice hockey coach, and I also know, a boxer. I’m not sure how you’ve done all this, but I really think it speaks to lifelong learning and developing passions. What would you tell parents about that relative to their children?

Joel Klammer: So I would say, expose your child as much as possible, just as many things as possible. Don’t force it on them, just expose them. If it sticks, great, you know, encourage it. If not, expose them to it again later. Sometimes it’s not that first thing, sometimes a little bit later. For sometimes, the students are like, “oh I’d like to try this!” Encourage it. If they come up the idea, do it. Let them try it. For me, it was “I want to try this! I want to try that!” I love all of them, unfortunately. So, I just keep going.

Lisa Baermann: What would you want to tell your younger self?

Joel Klammer: Don’t worry. The time I was always thinking about the future. I was like, “what’s next? What’s next?

What's next? What do I need to do to get to that point?" In reality, life always gives you more opportunities than you can possibly imagine. I would have never foreseen all the different paths I had gone down. If I try to plan them all. It wouldn't work. It really is, you don't worry about it. God will take care of tomorrow.

Lisa Baermann: What would you want to tell your students?

Joel Klammer: Same thing. Explore your passion, and don't worry about failure. That's one of the biggest things. Lots of students don't have that resiliency, they are worrying about failing, like: I don't want to try that, because I think I might fail. Seek your passions, don't worry about failing. Try things, is what I would tell them.

Lisa Baermann: What would you want to tell your students' parents?

Joel Klammer: Some of the things I mentioned earlier. If your students mentioned something they'd like to try, encourage those passions. You never know where they lead. Don't worry about being going to the best schools. I had no intention to go to Columbia. It fell in my lap, and it's just because my other passions. It wasn't because I was seeking that, you know, top universities. They came and found me. Those things happen, and those are amazing.

Lisa Baermann: As a parent, talking with you, I think "oh my goodness, there's so many things here! What opportunities our students have! This is truly an amazing place."

Joel Klammer: It is. I hope they get exposed to things that they never thought about. Potential passions, potential interests, and a lot of exposures to the things that they might not even think about. Those are the things that sometimes create those passions that extend way beyond a career.

Lisa Baermann: So we talked about a little bit about innovation in robotics, and what you could see coming. In the larger context of Concordia, what do you see innovatively happening here? What would you like to see?

Joel Klammer: I'd love to see some sort of opportunities for our high school students to sort of take one of their passions, whatever it is. It could be dance, it could be drama, it could be art, it could be particle physics or quantum mechanics, and take it to some commentating project. Something where they show case that passion to their peers and to everyone else. That's incredibly powerful! The idea that you can share this idea, you develop it over your high school career, and then make it happen.

Lisa Baermann: I feel like we've just scratched the surface, but I'm so thankful for your time.

Joel Klammer: Thank YOU! It's been fun.

Lisa Baermann: Thank you parents for joining us for our masterclass today, and we will see you next time!