

Mary Loder: Before we start the episode, Course Stories is going to be at OLC Innovate this year in Tennessee. We hope you'll join us. Here's the dates and times that you can see us, Ricardo and myself, and join conversations and be recorded in a live episode. We'll be in a discovery session on Thursday from 1:15 to 2:00 PM in the Presidential Lobby, and we will be in the Jackson D Room on Friday, the 21st, 9:45 in the morning, to start everything off for the last day. Please join us, join the conversation. We look forward to meeting you in person.

Welcome to Course Stories produced by the Instructional Design and New Media team of EdPlus at Arizona State University. In this podcast, we tell an array of Course Design stories alongside other ASU online designers and faculty.

On today's course story...

Mike Angilletta: All right. There's just no biological model I'm aware of that gets you out of this problem that you are not a function of your brain cells and the decisions they make. I'm just the consequence of the development of all that genetic material in an environment throughout my life. Which means it sounds good to say I have free will, but it doesn't make any sense in reality. If you buy that argument, now, we can argue about whether that's true or not, but if you buy that argument, then it raises the question, "Should I punish someone who is unfortunate enough to be put in a time and place with a set of genes that they would develop into what society calls a criminal?" Or "Knowing what I know or believe about that premise, should I treat them differently?"

And so this gets in the idea of what does it mean to go to prison or what does it mean to rehabilitate? Or what does it mean to punish? Should we punish people or should we understand and somehow remediate or rehabilitate their behavior? And maybe we could say, "Look, I understand you, Mike. I get it, but I just don't care." But at the end of the day, it's still very different than saying, "This person is responsible for what they did." And I think that's the most fun in the course is to stop and think at the highest level, at the biggest picture. What have we learned and what does it mean about how we interact with others?

Mary Loder: Hi, I'm Mary Loder, an instructional designer from ASU Online.

Ricardo Leon: I'm Ricardo Leon. I'm a media specialist at the same place.

Mary Loder: Yeah, we work together.

Ricardo Leon: Let's get on with the show.

Mary Loder: Okay. Oh, Ricardo.

Ricardo Leon: Hey, Mary.

Mary Loder: Ricardo.

Ricardo Leon: Yes.

Mary Loder: So good.

Ricardo Leon: Yeah.

Mary Loder: I feel like we shouldn't even set this one up we should just go straight to the interview.

Ricardo Leon: Well, let's let people know what they're going to hear.

Mary Loder: Okay. Fair enough. You start.

Ricardo Leon: What? We're going to listen to... what...?

Mary Loder: I'll never make you start.

Ricardo Leon: That was my cue for you to say it.

Mary Loder: That's funny. Okay, go ahead.

Ricardo Leon: So what are we going to hear today, Mary?

Mary Loder: I'm giggling because it's a fun episode, it's funny.

Ricardo Leon: It is a very fun episode.

Mary Loder: Oh my gosh. We're going to listen to Michel Angilletta, who is... Well, he'll introduce himself. He's wonderful. And then also John Ball, he's an instructional designer. He's a manager of Instructional Design around adaptive learning and knows CogBooks and so he's worked with Michael Angilletta, and the whole BioSpine team for a long time. But that's-

Ricardo Leon: Yeah. That's the adaptive learning guy.

Mary Loder: And we are going to talk a little bit about adaptive learning, a little bit about BioSpine, but not really. Most of this conversation centered around a super unique class called, Why People Steal, Cheat, and Lie.

Ricardo Leon: Bio 432.

Mary Loder: Which is a huge diverse subject, as you'll hear in the conversation. Some of the content is maybe not suitable for all ears.

Ricardo Leon: Yes.

Mary Loder: Or all desires. And so we are going to have some sensitive content that's at the end, and we'll let you know, right?

Ricardo Leon: Yeah. It's pretty tame up until the last little anecdote at the end, but we will definitely check in and make sure that those people maybe have kids in the car or things like that are prepared to shut the podcast off. And we'll probably close out by then too, and then just let you enjoy that last bit of the conversation.

Mary Loder: Yeah, that's fair. To give them just a heads-up, there's a trailer for this course based on Grand Theft Auto on YouTube. If we find it, we're putting it in the show notes, so you'll have an understanding. All right. So I think the thing that we have to point out here is that this entire course is about human behavior. Just in general, there are many depths to the human experience, and they explore so many of them in this course. And it really shows that flawed humans exist, and we are them, all of us. We are all flawed in some way, right?

Ricardo Leon: Yeah. And that was interesting and Mike does talk about how that has affected his life. And even just hearing the conversation today was making me reframe a whole lot of things that I have-

Mary Loder: Absolutely.

Ricardo Leon: ... experienced and had interactions with people in my own life. And that was a really, really interesting way to frame everything.

Mary Loder: Totally. I want to take the class just so I can hear all the interviews. I can't wait to hear more about it. Let's listen anyway, to the show.

Ricardo Leon: Let's do it.

John Ball: Hi, my name is John Ball. I'm an Online Learning Manager for Personalized Adaptive Learning at EdPlus, and I've been working with instructional design and adaptive technologies for the past 10 years.

Mike Angilletta: My name is Mike Angilletta, and I'm a Professor in the School of Life Sciences and an Associate Dean of Learning Innovation at EdPlus. Oh, and I developed Bio 432, Why people steal, cheat, and lie.

John Ball: Hey Mike, thanks for stopping by. Why don't you tell us a little bit more about what makes this course unique from other Bio courses that you've developed?

Mike Angilletta: Boy, that's a pretty open-ended question, John. Where to start? I'll say this. Here's how I like to explain this course. This is a course you can imagine, if aliens came down from space to earth and studied humans and tried to describe why they do what they do, what would they tell us? In other words, let's pretend we're not people, but we're studying people like a fly on the wall, like we would

study other species. We often, when we think about ourselves, tend to think of ourselves in a very biased way. We don't study ourselves objectively often.

So this is saying if we objectively look at how humans behave and why they behave that way and treat them as if there were nothing other than another species of animals, what would we make of that? And so it's my attempt to study humans as if I'm a behavior ecologist, studying the behavior of humans and using the traditional ecological and evolutionary theories to understand why humans behave the way they do.

John Ball: So it seems like this course intersects a bit with anthropology. Is that true?

Mike Angilletta: That is definitely true, but it also intersects with criminology, sociology, psychology, even philosophy and ethics. And so they're all these areas that are blended together. But if you ask me, again, coming back to that idea that if I'm objectively studying humans as if they're another species, all of those disciplines are just sub-disciplines of the biology of humans.

We created all that stuff through the evolution of our brains and our culture, which is a product of our humanness. And so yes, we have to understand how all those researchers and those disciplines think about these problems, but also then filter that through the lens of biology.

John Ball: Right. So I noticed there's not a lot of lectures in the course, but a lot of expert interviews. Can you tell us a little bit more about the panel of experts that you interviewed for the course?

Mike Angilletta: Yeah. There's about 50% of me teaching a traditional lesson based on what we know from research. And there's 50% me interviewing people, sometimes not even experts, but just everyday people that we happen to meet on the street in a certain situation. And there's a really good reason for that. One; part of this journey for me in developing this course is that I wanted to learn about these things from the lens of not being an expert in human behavior. I'm an ecologist and an evolutionary biologist, mostly spent my career studying non-human species.

And now what I wanted to know is, what makes me tick? So in a sense, this course was a little bit of a midlife crisis for me to figure out what is it about me, the things that I've done, the way that I feel, my views on humanity, how can I learn through my knowledge as a biologist, to make sense of that?

And so I went on a journey to read, literally hundreds, at first, there was hundreds and ultimately thousands of papers in all these different disciplines. And then I thought, "This will be a great course. I'm fascinated, why wouldn't a typical person want to know this stuff?" And so I thought, "Could I put together a course like this?" And then in doing that, I realized I really have to capture the original voice of these experts. And how much fun would that be to go around

the country interviewing people that I've read papers by who fascinate me, and then find out how they think about it outside of the work that they publish.

John Ball: Wow. How long did all that take?

Mike Angilletta: I think we put this course together over the course of one and a half years. And in that time period, there was both the development of the video lessons that you would see, which are the first half of the course, that's all blended, of course. But the first part I mentioned, which is me doing a traditional standing in front of a green screen with PowerPoint slides.

But then I went on various trips and some of those trips were targeted. We went to Las Vegas, we went to Los Angeles, we went to Georgia to visit various institutions where I knew I could meet people that had expertise that I wanted to bring to the students. The other part of it was I often get invited to visit universities to give seminars on my own research. And in doing so, I would then look around at whose in the area and use that trip as a way to get more bang for my buck.

And then I would try to take a ride to that university, or the same university I was visiting and talked to as many people as I could who would relate to the course. And so the compilation of all that over the course of a year and a half is what you see as the other half of the course. And I was really proud and pleased to be able to talk to some of the people we talked to.

Some of these people are the leading experts in the field, and I couldn't even believe that they talked to me because here I am, I'm just some guy who's not known for this. Right? Yeah. I'm an academic and I have a degree in biology, and I've published 100 papers in biology, but not in human behavior. So I contact someone out of the blue by email and say, "Hey, I'm going to visit your university. Would you sit down with me for an hour and let me record you talking about your research and use that in a course?" And every single person that I contacted said yes.

And all of them were spectacular, very gracious with their time and their energy. And the outcome of this, I think was tremendous.

John Ball: That's amazing. So some of the experts that you interviewed would talk about themes like human cooperation and maladaptation. Can you explain a little bit more about that?

Mike Angilletta: Well, so actually a fundamental principle in the course is, Why do we cooperate? So people read the title and they see, Why people steal, cheat, and lie. But actually an alternative title could be, Why don't we all steal, cheat, and lie? Because when you think about it, those behaviors are so fundamentally adaptive if you can get away with them. And the question is, what is it that

holds societies together such that people aren't constantly taking advantage of one another?

Because there's an evolutionary advantage to propagating your own genes, copies of your own genes as opposed to others. So cooperating is giving up a bit of something, like giving up a bit of your time, giving up a bit of your energy, your resources, in order to help others. And so you must be getting something back in return for that. And even if you have a solid foundation of cooperation, like we have in our society, I couldn't live, I don't know, I couldn't last five days without people cooperating, I don't know about you, but I get my water from someplace, I don't make it.

I'd run out of drinkable water in a few days if the grocery store didn't sell me any. And then that's one out of thousands of resources that I use that I get through cooperation in society. But now, once you have this society that cooperates, now you have the advantage of being a cheater. So there's lots of ways that you could cheat around the fringes of society and take advantage of the fact that most people are cooperating.

And it's this balance between the benefit of individuals cooperating to mutually benefit one another and then suppressing a large fraction of individuals that might want to be cheating through the system. And so there's a balance here, and it's like, what is the frequency of cheating versus cooperation that can persist in a successful society? And what are the factors that determine how this balance moves up and down? And that's really what this course is just about as a whole, is all the different ways that people can cheat within a cooperative group and what maintains cooperation over the long haul, given that this cheating does occur.

John Ball: Absolutely. I think another interesting factor in this course are the titles of some of your videos. One of my favorite titles is, What Do Women Want? And could you go more into the expert that helped you develop that video and the expert interview?

Mike Angilletta: Boy, I'm still trying to figure out the answer to that question.

John Ball: Yes.

Mike Angilletta: My wife will tell you. If I recall... Can you describe the video? Because again, full disclosure, it's been five years since I taught this course.

John Ball: Sure, certainly.

Mike Angilletta: And seven years since I developed it. I believe that was John Alcock, am I correct?

John Ball: No, John Alcock, I think, was about why people steal, but I think it was Dr. Marley Hastelson.

Mike Angilletta: Oh, Marty Hasleton.

John Ball: Haselton, sorry.

Mike Angilletta: Marty Hazleton. Yeah. She works at UCLA, I think she still works at UCLA. And she studies human reproductive behavior, sexual behavior, and with a focus on women and things like how the preference that women have for a mate may change through the estrous cycle and the various stages throughout the menstrual cycle. And that's really fascinating stuff because in a nutshell, I think the most famous thing that she's actually shown is that at one point, when say a woman is not ovulating, she might want certain features in a man or in a partner. And those features might align more like a reliable job, a good source of income, that sort of stuff, stability.

Another point in the menstrual cycle, usually when they're ovulating, a woman might want something like really good looks, really tall. You know what I mean? Charming. And so I believe the analogy she used at the time was George Costanza versus George Clooney.

So at one point in the menstrual cycle, I needed a George Costanza, another point I really wanted George Clooney. And if you think about it from the context of evolution it might be adaptive in order to ensure good alleles, but at the same time ensure care for your offspring. And so it gets in an area of cuckoldry, the idea that as a mate a woman knows that the offspring, the baby, that she gave birth to is in fact her baby. But a man never knows. And so there's an opportunity for cheating or cuckoldry as we would call it in the field of reproductive behavior. Where you fool your mate whose taking care of the offspring into thinking they actually sired the offspring, when in fact, there's another father altogether.

And the really interesting thing that follows from that, it's not Marty's work, but it's a paper that I discovered while I was doing research for this course, and I thought it was amazing. If you go and you ask mothers in the delivery room or after when they're recovering in recovery room, they've all had babies. And you would go in and you'd say to them, "Hey, that's a cute baby. Who do you think it looks like the father or you?" And what will happen is if the father's present, they're far more likely to say it looks like the dad than if the father isn't present.

And if you ask an objective observer to rate whether the babies look like the father or the mother, they always rate the baby similarity to the father far lower than the mother does in the presence of the father. Which suggests that women are pre-programmed to actually fudge the similarity between the baby and the father in the presence of the father. This also goes along with Marty's work and lots of other work that suggests, look, there's a propensity for both sexes to

potentially cheat on their partners in cases where it's evolutionary advantageous.

Not saying it happens all the time, but it's like we have these ingrained propensities to take advantage of a system when it benefits us as individuals. And that's really what the course is all about. When did these things happen and how do we deal with that evolutionary baggage of temptation that we all have? Because we've all been there, we've all been an opportunity where we could steal something, we could lie about something, we could cheat about something. And please don't tell me you've never done it because that's just silly.

And so the question is, why do we feel that way and how can we then curb our behaviors or think differently about them? And for me, I think very differently about how I interact with people than I did before I built this course.

John Ball: Sure.

Mike Angilletta: I'm much more conscientious about how I interact with people. I reflect on things I would've done selfishly in the past and try to avoid them preemptively. I sometimes apologize far more often than I would have in the past for things that I have done. And that's all because of reflecting that, yes, I'm a flawed individual in a cooperative society because I've evolved to take advantage of those systems when it suits me.

Mary Loder: Okay, so just take a moment. Let's pause. I want to give the counter to the female estrogen story that was just told.

Ricardo Leon: Hmm.

Mary Loder: Because I did get the opportunity to watch some of the lectures, and there was a lecture specifically around testosterone and the ability to cheat or not and all of that. I went back and watched that video, and I just want to highlight that not only does additional estrogen cause people to make decisions, additional testosterone does too, and testosterone can turn into estrogen. There's all kinds of things that can cycle around in the male mind and body because of too much testosterone.

And it was found that if someone was single, they had more testosterone, made them more likely to go find mate like behaviors. Whereas if they were married and involved with their kids, they had far less testosterone than even those who were just married, but uninvolved. So guys, get involved with your children.

Ricardo Leon: Okay. Teach your children well.

Mary Loder: Or we can do something like guys or ladies, if you're worried about cheating, carry around the sound of a crying baby.



Ricardo Leon: Yes. Actually, for those of you who are baffled by that, that was part of the lecture, it does lower your testosterone here.

Mary Loder: Being involved with your kids. So I'm making a joke about-

Ricardo Leon: Yeah, so if you care take a role.

Mary Loder: ... the crying baby. No one wants that.

John Ball: I think one of the conclusions in the course is, of course, we all steal, cheat and lie. Did you ever come up with any index or percentage of how frequent that lying, cheating, and stealing is?

Mike Angilletta: Well, no, I did not. And I would say that would be beyond the scope of probably what one could easily do on a global scale. But-

John Ball: Yeah, tough question.

Mike Angilletta: ... you could ask the question. This is what researchers do, within a population of organisms, whether it's humans or birds, what is the frequency of cheaters? And where or in which situations does that frequency increase or decrease? So the thing about humans is they're the most plastic species that you could imagine. It's not that we cheat or we don't cheat. There are cheaters, there aren't cheaters like each of us is capable of deciding in an instant whether we are going to cooperate or not. And we can flexibly change that based on our surroundings.

And so really what we're interested in is what is the probability that each of us would make a decision that is selfish or unselfish given a certain situation? And what situations increase the frequency of selfishness? So a great example from the course is, and I love these studies where they do these studies in real scenarios where they do an experiment in the real world and people don't even know they're part of an experiment.

So a great experiment like this is... and you have a coffee maker I see in the corner. And so imagine if you had a public coffee maker and all the coffee supplies are there, and of course at the end of the day, someone has to buy those coffee supplies. You have to buy more coffee grounds, you have to buy all the cups. And so what people normally do is have a little cup and you have a cup of coffee and you put a quarter in the cup, and at the end of the week, there's money to go buy stuff.

So it's a community pool, but that is ripe for cheating. We used to have one of these at my university when I was a graduate student. And at the end of the week, we'd always look in the cup and there was no money there, it was sodas, but it's the same idea. And then we'd have no money and we'd all be looking at each other, "Who drank all the soda?" And nobody put any money in there. So

what they showed in this case is if you have a photo of somebody, a face, or even just two dots representing a pair of eyes on the wall, you can get people to behave less selfishly.

So if I go over to make my coffee and now there's a picture of a person staring back at me, I'm more likely to put money in for that drink than if I didn't see that. And what that tells us is that we're wired to actually behave differently according to our environment in ways that would benefit ourselves. Because if you cheat and someone catches you cheating, now there's a huge social cost to that behavior, despite the benefit of not having to pay for coffee. You don't want to be the guy that shows everyone you don't pay for coffee because now no one's going to be helping you in other ways.

And so I think is just a really simple experiment. The data are so elegant and it illustrates how flexible we are in our daily lives.

John Ball: There was another experiment that compared tipping to dictatorship. I don't know if you remember that, but I can give you more background.

Mike Angilletta: Yeah. No, I think I do. Is this the one with the bakery?

John Ball: It's the bakery and people are in line.

Mike Angilletta: Yeah, that's right. Every time I go to a restaurant now I think about this. You have these little machines and you pay right there at the table, and then the question comes up, "How much do you want to tip?" And so you're staring at the server while you're making your decision to tip. What a bold move. That's fantastic because wait till you hear this study and they'll tell you why that works so well, for the servers.

In this study, they had researchers who were actors in a bakery. And what these people did is they went up and ordered a croissant and the eater tipped the server of the croissant. A servers is, I think, a really stretch of a word here. The person literally just handed them a croissant from the rack behind them and handed it to them, if you're going to Starbucks, a get your coffee.

And it's always mind-boggling to me how we evolved as a tipping society. Because many societies, if not most societies don't have the American tipping culture. So when I visit Australia, for example, they think it's bizarre that we have to tip our servers, that the servers don't make a fair wage, it's just built into their hourly wage so they don't do such a thing.

So in France is very similar. Tipping is not customary, at least at the time when this article was written, it was something that people do, but it's not something that everyone does. It is certainly not required. And so they had two types of actors that would order these croissants. One would just take the croissants and say, "Thank you very much," and leave. And then they would look and see what

the person behind them did. The second actor would take the croissant, put a euro in the little tip jar, and then leave, and they would look and see what the person behind them did.

So each time the scenario's the same except there's a tip. And so what happened is the person following the actor was more likely to tip when the person in front of them tipped. And again, it shows our ability to flexibly conform to what's happening around us and how it might influence us. So in this case, "If I see your tipping, I'm not tipping. Oh, I'm the person in society that isn't going to tip. Okay. Who wants to cooperate with that dude?"

And so now every time I'm in one of these restaurants, flash back to what I just talked about and I get this thing, of course I always tip, but what gets me is when I'm doing takeout where I'm not actually being served other than being handed food, or if I go to a counter where there's counter service and I'm literally being given a cup and now I have to go get my own drink and I have to go get my own silverware and my napkins, I'm still being asked today if I want to give a tip. And I always think of this article because if the person in front of me tips, I feel like a real jerk not giving anything.

John Ball: Absolutely. Yeah. I think it's more and more that social pressure that causes us to react in certain ways.

Mary Loder: I think we should create a tip jar for Course Stories, and so when people come into the studio and they're doing a Course Stories episode, we have this tip jar, and it has a picture of you and I just looking at them poor and broke and in need of help.

Ricardo Leon: But we're already going to be here, poor and broke in need of help.

Mary Loder: We can look at them directly as well, but I think in case we leave the room, it'd be nice to have eyes on the tip jar.

Ricardo Leon: Okay.

John Ball: One of the fantastic ideas you had in your course was to have a debate, and the end debate was whether criminals needed to be punished or forgiven. Do you remember students having any strong reaction to that and going one direction or another, or do you have a different assignment you might want to highlight here?

Mike Angilletta: Well, no, I think that's a great one. In fact, that's the culmination of the whole course. So I mentioned earlier that the course is not just about anthropology or even psychology, but it's also a bit of philosophy. And one of the fundamental questions that we ask at the end of this course is, "Do we even have free will in the first place? And if so, what do we even mean by free will? So can we define it? And within that operational definition, can we answer? Do we have it?"

And there is a fantastic paper by a man named Anthony Cashmore, who's a member of National Academy of Sciences, and he's not a member of the National Academy of Sciences for work on human behavior, in fact, he's a plant molecular biologist, if I remember correctly, at the University of Pennsylvania. And when you become a National Academy member, you get to write a paper about whatever you want that gets published in the Proceedings of National Academy of Sciences.

And he had always talked about free will informally amongst colleagues and such. And he decided to write a paper on his views on free will. And this paper, in my opinion, is phenomenal. Because whether you agree with it or not, it gets you to think about this issue from all different angles, from the philosophical to the neurobiological.

And as it turns out, there are parts of our brain that are communicating to each other in ways that we don't even know about. And there's the conscious part of our brain, like right now I'm saying, "Well, what should I say next? Because John's looking at me and I have to say something on his podcast that doesn't sound ridiculous." And John's probably thinking, "What am I going to ask next?"

But there's also a subconscious part of our brain that's probably already acted on things that we think we're thinking about. And what neurobiologist's have shown is that there's a couple of hundred millisecond delay between you thinking, "I'm going to do something." And the other part of your brain actually causing your muscles to do it.

So in other words, you are not really in control of the ship entirely. The part of you that you think is you, that thinks for yourself. Which means a large part of your behavior, if not all of it really it just comes down to circuits like a computer. And if that's the case biologically, organically, we can't really say we have free will in the fundamental sense that I actually am in control of the ship, because the ship is just a brain that's responding to all the environmental stimuli around it. And while I can sit back in my brain and reflect on what's happening, I'm not really controlling independent of everything else what's happening.

As a consequence of that way of thinking about it free will, if you want to define it, has to be defined totally differently. It means that I get to think about what I'm going to do and decide what I think I'm going to do as I'm doing it, but in fact, I'm not controlling what I do. There's just no biological model I'm aware of that gets you out of this problem that you are not a function of your brain cells and the decisions they make.

And since I didn't develop my brain cells as a child, I was just a kid and at one point I was an embryo, and another point I was just sperm and egg and all of that was set in motion before I was me. I'm just a consequence of the development of all that genetic material in an environment throughout my life.

Which means it sounds good to say I have free will, but it doesn't make any sense in reality.

So where does that get you, if you buy that argument? Now we can argue about whether that's true or not, but if you buy that argument, then it raises the question, "Should I punish someone who is unfortunate enough to be put in a time and place with a set of genes that they would develop into what society calls a criminal?" Or "Knowing what I know or believe about that premise, should I treat them differently?" And so this gets in the idea of what does it mean to go to prison or what does it mean to rehabilitate? Or what does it mean to punish?

Should we punish people or should we understand and somehow remediate or rehabilitate their behavior? And maybe we could say, "Look, I understand you, Mike. I get it, but I just don't care." But at the end of the day, it's still very different than saying, "This person is responsible for what they did." And I think that's the most fun in the course is to stop and think at the highest level, at the biggest picture. What have we learned and what does it mean about how we interact with others?

Mary Loder: This whole conversation around flawed humans and judgment in general that we have for other human beings, it reminded me of Ram Dass.

Ricardo Leon: Mm-hmm.

Mary Loder: You know who Ram Dass is, right? Okay.

Ricardo Leon: Be Here Now.

Mary Loder: Yes, exactly.

Ricardo Leon: And we want to thank you listeners for being here now.

Mary Loder: Oh, that was good. But there's this quote, it's a really famous quote, so feel free to tune out mentally if you've already heard it. But if you haven't or if you have, you probably still love it. And it goes something like this. So we-

Ricardo Leon: Wait. Let's get the Ram Dass energy in here. We're going to put some music in that's nice and calming.

Mary Loder: Okay. So it's about trees, but it's connected to human judgment. So it goes, "When you go out into the woods and you look at trees..."

Ricardo Leon: Okay, so I'm going to replant the tree here.

Mary Loder: Please do.

Ricardo Leon: So read it, so we're going to have the music and do your yoga voice.

Mary Loder: Okay.

Ricardo Leon: This is what I was looking forward to for you to do.

Mary Loder: Yoga voice. Hold on.

Ricardo Leon: The yoga voice.

Mary Loder: Now I can look, [inaudible].

"When you go out into the woods and you look at trees, you see all these different trees. And some of them are bent and some of them are straight, and some of them are evergreens and some of them are whatever. And you look at the tree and you allow it. You see why it is the way it is, and you just sort of understand that it didn't get enough light and so it turned out that way. And you don't get all emotional about it, you just allow it. You appreciate the tree. But the minute you get near humans, you lose all of that. And you're constantly saying, "You're to this," and, "I'm to this." And that judgment mind comes in. And so I practice turning people into trees, which means appreciating them just the way they are." Oh, Ram Dass, what a poet.

Ricardo Leon: Yeah.

Mary Loder: What a scholar. Truly, he was a Harvard professor before he turned into Ram Dass, after his journey up the Himalayas. Anyhow, lovely.

Ricardo Leon: We'll have a Ram Dass, episode next season.

Mary Loder: Oh my god, I would love that so much. I love Ram Dass.

Mike Angilletta: There are lots of other questions that students answer like is... One of the things they say is war a form of murder? So this is a very charged debate as well. And you asked me, I'm coming back to the answer. What do students say? They say all kinds of things, they come down on both sides of it. They come down in the extreme, they come down in the middle and aren't sure. That's the fun thing about this class is every time it's taught and you read what students write, the arguments that they make about these questions. They're so high level, they're so open-ended and they're so charged emotionally that you get such a wide range of very interesting things.

But what I really grade on is not the answer. There's no right answer for any of these things. What I grade on is your ability to build a strong and cohesive argument based on data. Like I said, if an alien came down from outer space and studied us, how would they answer the question? And it would be based on an objective form of data. And that's what I'm looking for.

John Ball: That's amazing. And I think it's interesting to think of it from the alien context. And I want to back up to something, a word you used, remediation. Thinking about this course, I know you built a lot of other biology courses for the BioSpine using adaptive tool CogBooks. In this course how did you think about using adaptive learning technologies maybe a little different than other more factual based courses. I know you used evidence, but this course has a lot of philosophy in it as well. How did you think about that differently maybe as you designed the course?

Mike Angilletta: Yeah, so just for people that don't know what you mean by adaptive-

John Ball: Sure.

Mike Angilletta: ... we're talking about software that you use when you're learning, and that software is how you engage in the material for the course. So in this course, there might be a series of video lessons, there might be a series of quizzes or activities, and those things are presented to you in this software. And where the adaptive comes in is, let's say I had a lesson on cooperation and it was talking about the concept of cooperation and what are the factors that might influence someone to cooperate more or less? And in that case, I might get to the end of that and have a quiz, or I might just have a reflection of, did I understand what was in this lesson?

And I have an opportunity to either, through the quiz, demonstrate that I don't understand it, or through my reflection, admit that I don't understand it. And what would happen is it would unlock additional material, an additional path for the learner. And in this case it could be another video by another expert, which clarified something or it could be a reading. And so the way I looked at it is that there's a lot of stuff on YouTube about this.

There are some really great authors who have written books, and oftentimes what they do when they write books is they go to promote their stuff on YouTube. And so because the people that I covered the work by, the researchers that are represented in this course are usually prolific authors. Because when you study human behavior, there's a real opportunity to write books. And so many of these people have gone on to write books of their own or write popular things. They often have things on YouTube, which I can then leverage as their opinion on what's going on, not just my opinion, but their own interpretation of that kind of work.

And so some of those things are YouTube videos that unlock, other things are readings that I wrote that break things down a little bit more clearly. But it's the same concept as any course. And it's interesting, I want to make the important distinction. I don't think there's anything in this course that's opinion. I actually think it's all 100% a scientific interpretation of data. In fact, I was very, very precise about showing raw data in every single lesson. There's nothing that's

asserted in a lesson without an experiment. And I'm showing you the data from the experiment.

And it's important because this is about human behavior. It's very easy to fall into the trap of pontificating about human behavior from your own experience or anecdotes. And so if you are going to do what I said, I'm going to take this course objectively as if I were an alien coming down and studying humans, you have to draw on raw data entirely.

You cannot start just saying things without showing people the data, especially if you want convince them. So while, in fact, what you can conclude from the data might be opinion, the actual topics themselves are all approached from, I would argue, this is the data. "Here's what we found in the experiment. Here's the experiment, here are the assumptions." Now, you might conclude something differently from those data. And so you might say, "Well, we do have free will." Or "We don't have free will." But the vast majority of the course isn't just those provocative arguments that we ask students to make.

John Ball: Yeah, that's a good answer. And another way I think I saw you using that adaptive formation of the course was to remind students of a lesson that you had taught earlier in the course and linking them together. So you would link together stealing with lying, and do different things like that to help students realize the connection between previous course material and what they were learning at the time.

Mike Angilletta: Absolutely. In fact, I believe, I recall, I even go back to link it to a previous biology course. So if you had introductory biology or general biology, which is the course that's a prerequisite for this course, very fundamental concepts in biology, which are pertinent to this course are things like natural selection or things like behavioral ecology. All of those topics are covered in a general biology course. And so a student would be referred back to a reading, or a lesson, or an activity about that fundamental concept because it might have been two or three years since they took that course, and they may have some misconceptions about that concept at this point.

So it's hard to apply that concept to human behavior if we don't fully understand it in general.

John Ball: Yeah, excellent. Talking about the BioSpine, this really is an elective course, if I remember correctly. It's not necessarily a part of the BioSpine, but do you want to discuss any of your work that you did to create that network of courses together and basically creates a new model for education that hadn't really been rolled out previously?

Mike Angilletta: So again, I'll take a step back for listeners to describe what the BioSpine means because it sounds like some fancy supplement that I'm going to buy, it's going to make my bones stronger. So the BioSpine is code for an adaptive curriculum in a



software package where each course you take is in that same software package. And this software package we chose, in this particular case is called CogBooks.

But it could be in any software platform where all the courses are together such that if I need help in a course, that software will take me back to a previous course, not just the course I'm in. As you pointed out, I could link lying and stealing and cheating in a course, it's my course. But if I can link that to all the previous courses where the material in those courses would supplement or help bolster my understanding of this current course, what an advantage.

Because that's the whole point of being in college, is to take a curricular journey over four years. It's not just a whole bunch of siloed one-off experiences. Yeah, some of my electives were like that. I took first aid, it had nothing to do with anything else, but that's a gen ed elective. But in your major, all these courses should somehow lead to a broader, deeper understanding as a whole.

And so the BioSpine is an effort to put all of our courses in the biology major into one software platform where we can connect the dots among courses so that students can move backwards and forwards among courses, as well as within courses, and get a deeper understanding of where they're at in the current course. So as I mentioned before, that example, going back to natural selection, if I'm thinking about the evolution of human behavior, you can apply that across the board in any course.

Now, my role in that was I was in charge of undergraduate programs in the School of Life Sciences for a period of about six years, and we built an online degree, a completely online biology degree. And in doing that, we realized we were going to have to develop a full set of digital courses anyway. So why not choose a platform where we could connect these courses adaptively, because that's just like gravy on the biscuit or icing on the cake. We're already making the cake. Why not do it in a way so that we can connect all that and get the added benefit of students being able to move across courses. And so that's what we did.

So Bio 432, as you pointed out, is an elective. It's also a general education course, which means anyone in any major could take it as long as they've had some biology. And so that's what makes it a great course. You're going to get a mix of people who have already had three years of biology and people have had hardly any biology, but all of them are there because they find the title fascinating, who doesn't find the title fascinating. That's why I named it that.

And as a consequence, that course, it's even more important that it's an adaptive course because for some students, they've never had some of these biology courses, so they might really need to go back to a lesson that was in a course that they didn't have before. And that's the beauty of having this adaptive platform.

John Ball: Yeah. And this adaptiveness is evolving, I think you're working on new projects. Bio 181 has some new frontiers being introduced. Do you want to go into a little bit more of what you're doing currently?

Mike Angilletta: Yeah. Our first version of this thing you call the BioSpine was just to simply take the way we teach the courses that we have and put them this adaptive platform and connect them. But always, we knew that these courses could be better. And also in building adaptive courses, we learned a lot of things about how to do that better. And so the second wave of revising those courses is to incorporate all of the tricks and tools that we came across the first time into each course.

So first, the courses will be a lot more similarly aligned. And so it won't be like I'm studying topic A here after I've studied topic B there, but A should come before B. Or it shouldn't be there's a big gap here that's missing or some overlap, or I'm studying the same things across two courses. There should be some alignment and progression.

And so we can do that in a second wave, and that's what we're doing. And the other thing that we're doing, which I think I fundamentally never learned to do, because I never had any formal training in education, and this is probably going to surprise listeners who are just students and not involved in higher ed in any way on the backend, but your professors, the vast majority of them have no formal training in education. A K-12 teacher has light years more training and experience in putting together a curriculum than any of us do here at a college.

Except outside the College of Education, of course, which they are the people that train K-12 teachers. However, you take a professor like myself, "Why do I have my job?" Well, I did a bunch of research in a very arcane area of biology for five years, and I published a bunch of papers that some of my friends and colleagues across the world have read.

But well, how does that qualify me to now develop and deliver a curriculum? Well, frankly, it doesn't. And so it's no surprise that 15 years later I've learned an awful lot on the job about what I didn't know. And so the second wave around is to build in some of those tools that students need to learn that I was unaware of as an educator in higher education because I didn't have that formal training. And so it sounds simple to say if you want to excel at something or master something, you need to practice. Coaches know this. That's why players on teams practice exhaustively every day to try to get better at what they do.

But it's not something that's part of our formal training for higher ed because there is no formal training for higher ed. So I've discovered that there's not nearly enough practice for students in the courses that we have built. And so what we need to focus on is providing that practice early on in the course. It's too late by the time you get to the exam, they should have had many, many, many, mini exams all throughout the way. And if that's the way it works, there is

no such thing as studying. By the time you've finished all that practice, you are just now ready to take the exam.

So the idea of saying, "Well, how long should I study?" "Well, you shouldn't study at all. You should just go through a course that provides sufficient amount of practice, as you go, so that you're building up a repertoire of skills and concepts that you can then apply on an exam."

John Ball: Yeah. Amazing answer. And I think the other thing that people might not know is, from my perspective as an instructional designer, you have a lot of instructional design blood in you, and you're aligning these outcomes to actual national standards. And I think that's what's making a difference for this entire program is that you do have competency based instruction and you're teaching mastery.

Mike Angilletta: Well, we hope that it will make a difference, but we have a long way to go. And I'd want to emphasize, it's a lot of work. So it's not just that we don't know how to do it at first because we haven't been trained, but also once you figure out what you have to do, you still have to figure out how to squeeze the time into the current system to get it done. Because higher ed wasn't designed for this, and therefore there's no time in the current workload of a professor to develop curriculum.

We're historically relying on textbooks, and textbooks are clearly not a curriculum. They are a great wealth of information, but there's a difference between information and knowledge. Knowledge is an understanding or a model about how the world works that you develop from observations, from data. And then allows you to make predictions about a whole range of things once you have that knowledge.

I could give you information, tidbits about specific scenarios. I could do that all day long, but you have to construct knowledge from that. And textbooks are not designed to enable students to construct knowledge the way that we know brains work. And so it's a lot of effort to completely overhaul a curriculum, and it's certainly not rosy every day.

John Ball: No, it's not. But you are also having students apply this information to different scenarios such as what they might experience in Dreamscape Learn. Would you like to elaborate a little bit more on how that's coming into the curriculum?

Mike Angilletta: Sure, I would. And this is a totally different aside, but I'll say there's two aspects that I focus on now to improve education in biology. One aspect is supporting students in the learning. And we talked a lot about that. That's what the adaptive learning platform does, is like "I'm going to give you all the support you need to overcome an obstacle or a misconception and enable you to master a concept or a skill."

The second thing is engaging students. So we can support them all day long, but if they're not that interested in what we're teaching or how we're teaching it, they're not going to engage in those platforms like that software we talked about and get that support. So the other side of what we're working on in biology now is to engage students. And we're doing that through virtual reality. We have a partnership with a company called Dreamscape Immersive, and ASU and this company have formed a new spinoff company called, Dreamscape Learn.

And Dreamscape Immersive is a leading, technically leading company, developing VR experiences for entertainment. Now they've become a leading company, developing VR experiences for education through this collaboration. They can track your hands, your legs, your mouth, and you are moving in VR as if... We're looking at each other right now across the table. If we were sitting in VR right now, John, we'd be looking at each other in VR across the table. I would see your lips moving. We could high five.

And now if you think about that, once I can track your body in a virtual world, I can send you anywhere to be anyone and to do anything. And that is a tremendous way to engage students in any course. Because instead of me standing in front of you on video or in lecture hall for 15 to 50 minutes talking about what some biologist did, I could literally make you a biologist and send you to a place to become a biologist and do biology.

You could do an experiment. You could collect data and discover a pattern. You could solve a problem that's either real or realistic enough to seem real. And the best problems are actually ones that we contrive based on reality, but they're realistic but not real. Because at the end of the day, you have to solve them. They feel novel because you discover them, and they're not like any other problem on earth. You can't Google the answers. You can't chatbot, GPT the answers. I tried, I can tell you, you can't.

And so literally what that means is now you have to become a biologist, and that is what we're here for anyway, to train students to think like biologists so they can go out and get jobs, many of which are in biology. And so the idea here is that in virtual reality, instead of, for example, going to lecture hall, I send you to an intergalactic wildlife sanctuary.

Where did this place come from? It's a floating space station controlled by artificial intelligence from somewhere in the galaxy where life created artificial intelligence but then that life went extinct. And then the AI said to itself, "Well, what are we going to do now?" "Well, hey. It's a real shame that our creators went extinct, so why don't we go around the galaxy preventing other species of going extinct?" And they developed this intergalactic wildlife sanctuary, which goes around studying planets that are in danger, either because of volcanic activity, or meteor strikes, or climate change, or any other thing that's happening that's going to imperil an entire ecosystem of life.

And after studying that life, it then brings that back to the intergalactic wildlife sanctuary, and recreates that environment so that they could preserve those species throughout the universe.

John Ball: It sounds like we might have the opportunity to explain to an alien why we lie, cheat and steal one of these days in VT.

Mike Angilletta: Yeah. In fact... We sure could. We could bring some full circle on that. Well, it's funny you should mention that. You could imagine lots of VR experiences where you put people in social situations.

John Ball: Absolutely.

Mike Angilletta: And actually see how they behave and get you to reflect on how you behaved, given the change in social situations. So if you're in VR, I could have you in one environment talking to some people, and I could press a button and change what's going on around you, and then see how that affects the behavior of the people in VR.

Mary Loder: We definitely need to have Mike back to talk about Dreamscape Learn and in a totally separate episode.

Ricardo Leon: Yes.

Mary Loder: Absolutely.

Ricardo Leon: Yeah. And the BioSpine stuff as well. He does touch on it quite a bit, but we should explore it deeper.

Mary Loder: Yeah, because they're doing a redesign, like they said. And so I would like to have him back after they've talked about the redesign and find out why they're changing things, what they decided to change, how they approach the redesign? And specifically get a little bit deeper on the alignment throughout the program and how that really allows them to be flexible with how they deliver content and how students move through it? And I love it. It's a great example of alignment and how adaptivity in a program, from a programic view, not just a course view, is super beneficial.

Ricardo Leon: Sure, yeah.

Mary Loder: That work is deep, but it's meaningful.

Ricardo Leon: And we'll be exploring that in season four perhaps.

Mary Loder: Gosh, I hope so.

Ricardo Leon: Yeah. But for now, Mary and I, are going to be closing the episode up right now, and we're also going to be giving you guys the invitation to continue listening to the final anecdote that might not be appropriate for all listeners. But we certainly think it was a very enjoyable and interesting wrap up to the conversation. But before we do that, Mary, what do we want the listeners to do?

Mary Loder: Ooh, subscribe, like, follow us.

Ricardo Leon: Join us at OLC Innovate 2023-

Mary Loder: Oh, yeah. For sure.

Ricardo Leon: ... in April.

Mary Loder: Shameless plugs in the middle of an episode.

Ricardo Leon: This is the end of the episode.

Mary Loder: Well, for some people.

Ricardo Leon: For some people.

Mary Loder: But I hope the rest of you stick around because what's being said is meaningful. The experiences as human beings are deep. There's a lot of layers to being a human and being able to respect and understand the experience of others is so important to all of us in this world.

Ricardo Leon: Absolutely.

Mary Loder: So we do hope you'll stick around.

Ricardo Leon: Yes. For Course Stories after dark.

Mary Loder: Ooh.

Ricardo Leon: It's not that bad.

Mary Loder: No, I really like Tina. I'm excited to hear about her.

Ricardo Leon: Tina, yes. A little teaser for you.

Mary Loder: Totally. Goodbye.

John Ball: Well, as we wrap this up, one of the things you did was interview a lot of experts for this course. Some of those experts might not be considered experts in our

traditional society. What were some of the craziest experiences you might have had as you interviewed folks?

Mike Angilletta:

John, by far the craziest experience I had was when we did the module on reproductive behavior and cheating, basically adultery. We wanted to explore things like, "Why do people look at pornography? Why do people use prostitution as an outlet?" And so we thought, what better place to go than Las Vegas? And so we went to Las Vegas and our goal was to interview a professional prostitute, someone who has experience, deep experience in there and could tell us what it is like and what people want when they come use this service.

"Why does it function in society the way it does?" And so we went to Vegas and we went up and down this strip for two days trying to find where we could meet a prostitute and talk to them. And it turns out all that stuff's off the strip now. Basically you get these little cards with photos of people on them, and that's probably not even the person you'll meet, but you have to agree to get in a car and go somewhere and pay a certain amount of money.

And that's not what we wanted at all. We really wanted... And we were willing to pay. That wasn't a problem, for time, so that we could interview that person, but we didn't want to do it in that way. And also we didn't know where the hell we were going. So we went back dejected after two nights of this to our hotel. And we're talking around there about, "Oh, we got a good bunch of footage and outtakes and whatever, and it'll be fun. And was a good time."

And a woman standing next to me is laughing at our jokes and me and my friend are talking to her and she says, "I'm going to go to the bathroom. I'm going to leave my purse here. Will you watch it?" And she leaves and my friend turns to me and goes, "I think she's a prostitute." And I said, "No, really?" "Yeah, because none of what we're saying is this funny. It's just not." And she's laughing way too hard at us and she's way too interested in us.

And we're just a couple of dopey looking middle-aged men. So for sure this is starting to make sense. And then she comes back and I decided to take a risk and I said, "My friend here thinks that you are a prostitute. Now, I'm not saying I said that, but my friend said that and if you are, look, I don't have a problem with that. In fact, I'm delighted because we're a couple professors and we are looking to talk to somebody who's in the field of prostitution about..." And we told her all about the course we teach, and we told her all about the types of questions we want to ask and issues we want to know about.

And then we said, "We would like to pay you not to do whatever you normally do, but to just have an interview with us." And she agreed and we were concerned we said, "Please tell the bartender what room you're going to and all that stuff. We want you to feel safe about all this because you're going up to the

room with three guys." Because there's us two, my professor friend, and a cameraman. And we went up and had a amazing interview with this woman.

Tina, was her working name. I don't know her real name, but Tina was a working name, and she was incredible. She told us the ins and outs of the prostitution business. She had worked both for a pimp on the streets, informally. She had worked at one of the brothels that are legal in Vegas where it's very formalized and very standardized.

And she had worked on her own like she was at the time. And she told us all the different perspectives. And it was actually quite convincing that for her, it's a very satisfying career and that she's chosen it. She has a child, and she is able to raise her child and provide for her child. And this is exactly what we wanted. The perspective of, the reality is prostitution's a thing, pornography is a thing. What maintains these things? Who are the users of these things? Who are the deliverers of these things? And what functions do they play in society and what context they do they have in adultery? Either for men or for women.

And it turns out what we learned from the experts is the vast majority of consumers of pornography are men. The vast majority of consumers of prostitution are men. And there's a great biological explanation for that, whether you like it or not. But this is the kind of thing we were getting at. And to me, John, that was the highlight of the thing. Tina, gave one of the best interviews of anyone in the entire course.

John Ball: That's amazing. And I think you have an amazing ability of combining academia with the real world and making people see those connections. I want to thank you for dropping by today and talking to me. This was an excellent opportunity to discuss with you all of these different themes and topics and why people lie, cheat, and steal.

Mike Angilletta: Thanks, John.

John Ball: Thank you.

Ricardo Leon: Course Stories is available wherever you listen to podcasts. You can reach us at [coursestories@asu.edu](mailto:coursestories@asu.edu). Course Stories is produced by the Instructional Design at New Media Team at EdPlus at Arizona State University. If you're an instructor at ASU online, tell us your course story and we may feature it in the future episode. Thanks for listening.