



Making AI Accessible for All

Teaching Beyond the Podium Podcast

00:06 Dr. Alexandra Bitton-Bailey

Hello, my name is Alexandra Bitton-Bailey and welcome to the teaching beyond the podium podcast series. This podcast is hosted by the Center for Teaching Excellence at the University of Florida. Our guests share their best tips, strategies, innovations and stories about teaching. On today's episode, our guest is Joel Davis, Joel Davis has been working on analytics in AI for 20 years in industry, for companies ranging from Royal Caribbean to revenue management companies. He's also a faculty member at the University of Florida Business School and teaches about analytics and AI, he loves that he can serve as the bridge between industry and academia, sharing what he learned with both.

00:49 Dr. Joel Davis

It really started well, almost a little bit over 20 years ago, I was in an operations role as a manager, and in what I realized was that a lot of the things that I was seeing, I was making decisions all the time, and I felt like there must be a better way of trying to achieve what I needed to achieve. So I started to search for that better way. And what I quickly realized was that, you know, by taking all this information that the company was, was gathering and generating, and then making better, faster decisions with that, with that data, it really became something of a superpower for me and for my career. And so I just continued to leverage that information as much as I could. And I grew both my own kind of brand within the company, but also my team within the company. And my role started to expand within the company, because of the interesting thing I was doing with the data, which at the time was not, was not really popular, there was no such thing as data science or, or analytics being done in companies at the time. So it was really new.

01:41 Dr. Alexandra Bitton-Bailey

Joel noticed that students coming out of the University of Florida were lacking an understanding of AI, how it works, and the ability to work with AI.

01:49 Dr. Joel Davis

I fell into this role at the university because I complained to some people at the university about what I what I thought was its lack of an analytics and AI focus. And, you know, in true academic style, they just came back and told me, then why don't you do something about that? And I thought, well, great, you know, let me try that. And so you know, I came up with some ideas. And there's obviously some other great faculty there that were there were also involved in this push. But that was just it was just fortuitous that my complaints instead of being brushed off, or were met with, you know, some level of interest in fixing that.

02:22 Dr. Alexandra Bitton-Bailey

When Joel was first learning about AI, it was very challenging, instruction was limited and much of it was self-taught. He recognizes then that AI can still to this day be daunting for students. But he's discovered how to make it accessible to all.

02:37 Dr. Joel Davis

You know, I learned it over many, many years. And it was very, very difficult. And, you know, the formal instruction that I did have was was not great, it was very complex and not delivered particularly well. So I think, I think a lot of my desire was to make it more accessible and to make this easier to enter to kind of get your foot into the door, and then to allow them to grow those students to grow at whatever pace they felt they needed to grow out. So a lot of the principles that I started out with were really basic, you know, the most basic principle is, everyone can do this. That's how I approached this class in the beginning, it's how I approach teaching it every semester is one of the first things I say to the students, right, everyone can learn how to do this, you don't need to be a computer scientist, you know, if you can turn on a computer, and you can send an email that I can teach you something about AI and analytics.

03:22 Dr. Alexandra Bitton-Bailey

To make AI accessible to all students, Joel uses several very specific strategies. The first is individualized instruction. And by that he means that all of his students will leave the class having learned and mastered something about AI, but they may not all achieve the very same outcomes.

03:39 Dr. Joel Davis

Everyone will end up somewhere different at the end of this journey, however long they want to make this journey. Some of them are going to end up, you know, wanting to

become a data scientist and, and seeking further education, to learn more and to kind of grow these skills, and they're going to be very technically competent at the end of my class. Others are going to be, you know, they're going to come in with no programming experience a huge amount of fear and trepidation. And I hope that, you know, in the first few weeks, I've helped set that aside for them. It certainly is complex, but I don't think it's scary. And then by the end of the class, maybe they end up just understanding a little bit more about what's possible with AI, and what's and what's really fantasy, like what's sci fi Fantasy versus what it can really do in business. And they understand some of the tools, some of the programming tools that are used to make AI work. If that's if that's where some of the students signed up to me that's a win, right? Because I want them to leave this class feeling positive about the future of analytics and AI and business and their ability to interact with that future. I don't want them to leave thinking this is a place only for people with a PhD in computer science. Who spend a decade learning this stuff I want them to feel like they can they can play a part in that. So the entire class is oriented around that that idea.

04:53 Dr. Alexandra Bitton-Bailey

Joel also creates a deep sense of community in his classes, and remains a very engaged member of that community through the semester.

05:01 Dr. Joel Davis

I try to be very approachable. You know, as you know, this class that I teach right now at the University is an online class, and it's asynchronous, so they're watching videos. But I do make a live video once a week where I try to be very personal, I try to bring them into my life a little bit, too, and make myself feel more accessible to them. And I hope they get that feeling that I am accessible to them.

05:23 Dr. Alexandra Bitton-Bailey

Joel's classes are also carefully scaffolded so that the learning is chunked into bite sized pieces that students are able to learn and use before moving on to the next thing. This helps Joel continuously encouraged his students on their learning progress.

05:38 Dr. Joel Davis

I also started out with very basic principles and assignments. So the very first few weeks are really straightforward. It's basically about getting, you know, getting into the Python programming environment and learning a little bit about programming. But it's

not a very steep hill to climb. Obviously, the class gets more complex over time. And I have to, you know, I find myself during the semester going back to students over and over again, telling them, Hey, you got this, you could do this, you know, this is something that you're capable of doing. And, and we're going to get there together, we're going to get to the end together. Because there's, there's always some stumbling blocks along the way. But I think really starting out nice and slow and kind of slowly building up momentum. But also just trying to be very accessible. And very easy for them to communicate with, I think is really key, right? So I think especially the very beginning of the year, I always set aside quite a bit of time to, to answer emails and connect with students, I do several office hours a week, I try to talk with all of them online when I can or in person when I can, just to make them feel like, you know, they've got this, they can do it.

06:38 Dr. Alexandra Bitton-Bailey

Students love that their instructor is available, open and ready to engage with them at any time.

06:45 Dr. Joel Davis

I think what I hear from them is that I am accessible that I am easy to talk to. And I do help them try to solve through their problems or solve the problems that they're having. I think in the middle, there's some students who, you know, I might talk to once or twice a semester on a on an office hour or something else like that, you know, I leave open office hours for that reason where I you know, I just I hop online and allow people to come in and chat with me basically like a live stream. And people come in all the time, and we talk about whatever they want to talk about video gaming, or whatever else it is they want to talk about. In a lot of the comments that I receive at the end of the semester, and I read through those really carefully in the GatorEvals. I hear a lot about how you know the class was really engaging, and really engaged with the content. And that's a little bit surprising, given that I deliver it asynchronously. But I think most of that is actually just because of the weekly intro videos that I do. The kind of encouragement videos that I do along the way. I don't think that's my, you know, my teaching on those videos during the week that they're watching about coding, I'm not sure that not sure how those are engaging to them, but they seem to respond to them pretty well. And I have fun with it too. So I think they can see that too, that I but I enjoy what I'm doing. And I have fun when I'm teaching. And I think they can see that throughout the entire semester.

7:51 Dr. Alexandra Bitton-Bailey

Traditionally, most AI courses were reserved for folks in the hard computer sciences, and omitted a large body of students in the social sciences and other fields for whom it is also imperative to learn about AI and how it interacts with their lives.

08:07 Dr. Joel Davis

I think traditionally, we have not just the business school, but university wide, we really neglected students that were not in engineering, computer science, those like those hard computer disciplines where like they do a lot of coding, they learn a lot of that. And I think the reason is that, again, I think the people who are in charge of making those courses and driving that tend to be a little bit insular in their thinking in terms of, you know, what people are capable of learning, right? It's really hard to learn this stuff. And so, you know, someone in the arts can't possibly learn this. And I just disagree, I think someone in the arts can learn this. I think someone in the humanities can learn this. I think they should learn this, because it's going to interact with our world in some way. I think we've neglected those people that are in kind of the more the more social sciences for too long. And I think that those are the people that can benefit from this the most of the you know, within the university. I think it's not quite at the level where everyone understands exactly how this will impact their world, or how exactly this will change the way that they work, or live within the world. But I do think that everyone recognizes that there's something happening there. And so it's worthwhile knowing a little bit more about.

09:12 Dr. Alexandra Bitton-Bailey

AI is relevant and important to all but to make students want to engage, to help them see its possibilities and the value of learning it, instructors have to make it relevant to the students' world.

09:25 Dr. Joel Davis

Yeah, I think you have to make it cool. If you make it really boring if you make it really like a grind, right? Where you're where you're teaching something that is way to lower level for someone that just needs to understand the basic principles of it, then they can never interact with that. But if you can find something within someone's domain and make it very interesting to them and make it useful to them in some way, like show someone who's learning about music, how AI can generate music now and can and can generate music that is almost indistinguishable from music that's generated by people that's quite interesting for them. You know, it's both a risk for the future of how music is generated. But also, it's an opportunity for those that want to understand a little bit more about how that's done. In business, it's the same thing. If you if you leave the business school and you don't have an understanding about AI and analytics, you are ill

prepared for the business place of today, you're just not ready for it. So some of this is, you know, driven by their career aspirations. You know, if you want to survive in business, you have to know more about this. But more importantly than that, if you don't make it interesting, if you don't give them examples that are very real, and realistic, and you don't teach them what's possible and make it cool, they're not gonna pay attention to that.

10:30 Dr. Alexandra Bitton-Bailey

Joel explains that AI is a really broad field, and not all who embark upon it must learn how to code, it's just not necessary.

10:39 Dr. Joel Davis

AI doesn't have to be taught with coding, I think it depends on what you're what you're trying to do with AI. You know, there, there are many, many fields within AI, it's a, it's a, it's a big tent, and lots of people can fit inside of that tent. I think if you're doing AI in business, then it's, it's necessary to understand some of what the coding is, you know, I mean, expert programmer, but you have to understand some of that, because when you, you know, when you get out there in the world, that's how it's actually being used, right? People are writing programs to do something with that. And so it helps you understand how the computer thinks a little bit, and what's possible and what's not. But there are whole fields where, you know, it's only necessary to understand what it's capable of doing and understanding maybe how it's behaving, or the way the bias that it's injecting into decision making this whole fields out there that don't require any coding, you know, in philosophy and law and arts and sciences.

11:31 Dr. Alexandra Bitton-Bailey

When teaching AI with coding, it really is essential to start with the basics start as simply as possible to help mitigate the fear many students have revolving around coding.

11:42 Dr. Joel Davis

So one of the things that I do in one of my very first, you know, interactions with students is show them just how easy it is right, we install it using a package on their computer, which installs on most computers very well and very easy, without a lot of friction. And then I show them how to open it, and I show them how to do like two plus two and three plus one. And I use it as a simple calculator for almost 10 minutes and show them just how easy it is to use that particular machine. And then I just keep on

adding on to that. And I keep on adding more ideas on top of that over time. So I really do start with something really, really basic. At the end of that first week, I showed them an example, which is much more complex. And it's an example that we work all semester towards by the end of the semester in my class. So when week number one, they start with two plus two. And then I showed a very complex AI example. And week 15, they get that example back again. And they've now they understand what it means and how to do that. But I think that's kind of a, it's both kind of an easy on ramp for them. And it's a motivation to continue to learn because you'll be able to do that, by the end of this class.

12:41 Dr. Alexandra Bitton-Bailey

Joel is not an instructional designer by trade, but he applied great teaching practices such as scaffolding for learning in his teaching at the University of Florida.

12:51 Dr. Joel Davis

I don't know much about teaching design. It's not, it's not my area of expertise. That's you all, I think I just started from this perspective of what I've done, and what have I done in the past when when I have a new hire who's working for me in business, and they don't know anything, right? If I if I overwhelm them on day number one, if I just dump too much on the day number one, they're gonna they're gonna freak out. And they're going to be less productive in week number two, because they're just so they're so underwater. So the goal has to be just, you know, take some steps scaffolding you call the right scaffold, they're there they're learning. And the pace at which you do that is adjusted all the time, right. But for different people in different teams.

13:28 Dr. Alexandra Bitton-Bailey

We asked Joel, where to get started learning about AI? And his answer just might surprise you.

13:34 Dr. Joel Davis

To start learning, I think the answer is the same for everyone. And it's, and it's a resource that I point my students to constantly throughout the year, and that's Google, right. If you have a problem, Google that problem and add something like analytics or AI to the end of your search, and hit enter and see what kind of examples you can see out there with that are trying to solve that problem for you using some of these tools. Once you see those potential solutions, then it becomes a bit of a Christmas tree, right, you

start at the top. And now you have all these other problems that you need to try to solve for. It's done in a certain programming environment. And so maybe you need to learn something about that programming environment where it uses a particular statistical procedure that you need to know more about and so you start you have to start learning a little bit more. Once you've, you know, once you've found the answer to your problem, you can kind of start breaking it down.

14:16 Dr. Alexandra Bitton-Bailey

When you're ready to dive a little deeper into AI, Joel has some additional recommendations.

14:22 Dr. Joel Davis

I think at some point after the first, you know, foray into that some formal teaching is probably worthwhile. Just because I think there's a lot of practices that you can build yourself over time that are wrong, and then you just reinforce over time and unlearning those in the future becomes really hard. So find someone who's a really good mentor or teacher to help you with that. And then use that community of programming and AI and analytics. And there's lots of communities online for that. And there's lots of communities of university for that as well use those resources to learn more and continue to dive into the areas that you're most interested in.

14:57 Dr. Alexandra Bitton-Bailey

Joel also cautions against thinking one must know everything about AI to use it, or for it to be useful. Instead, he shares a great analogy that can help explain the level of knowledge needed.

15:11 Dr. Joel Davis

It's like driving a car, right. And this is an overused example. So it's a cliché, but it's overused for a reason, it's a good example, right? You don't have to understand exactly how every piece of your car works in order to drive the car. You just have to, you just have to know how to steer, you don't have to know the gas pedal is you need to know some rules of the road. And that does not require being a mechanic and understanding how to fix especially a modern-day car, and I can't fix cars either, right, but I still drive every day. And so understanding, you know, teaching people how to drive AI is just like driving a car. And I think if you can approach it at that level, at you know, how much do I need to teach them about this? What level do they need to go at? Do they need to be just a good passenger in this car? Do they need to be the driver? Do they need to be a

racecar driver? Do they need to be a mechanic, right? So thinking through those different levels of what's necessary, and what you want to share with them is really important. But you're right, I think we always end up my class had happens to be a bit more technical because of the domain that that I work in, and that I teach in. But there is there is entire fields out there, you know, like self-driving cars, and self-driving cars, you can approach from a technical standpoint, it's all about computer vision, how computers See, integrate that information, and then make decisions so that the car can self-drive itself. But there's also very real questions about societal benefits and harm that might be caused by self-driving cars. And those are all things that are great conversations that should be happening at the university.

16:30 Dr. Alexandra Bitton-Bailey

Joel has had a number of memorable moments with his students. He found that given a little time, flexibility and choice, students could be very creative and go well beyond our expectations.

16:42 Dr. Joel Davis

It came from the very first in a trial that we did of this course, we had 60 students in the course of the time, and we were on the very last week. And the very last week is pretty complicated. It's a pretty technical foray into computer vision and how computers see things. And we're doing some image recognition tasks. And in some of my, my, my videos, my training that I was doing, I was explaining how, you know, this detector that I was helping them build the space detector that I was helping them build on their computer could detect faces very well. But occasionally, it falls down a little bit, especially when given faces that is not trained on. An example that I used was mine, right? I have a beard. And so all the faces that I was trying to get on were clean shaven. So it just didn't do a very good job of recognizing that beard. And for the student assignment, you know, my only expectation was that they basically copied what I did, and ran it again, because it's a fairly complex area, and difficult for most people to do with only 15 weeks of training. But one of the students groups came back. And this was December, December of 2021 of the students group came back and they built a Santa Claus detector. So they built a face detection pipeline, using some of the code that I'd given them, but they went quite a bit further than that. And they built one that would detect a picture of Santa Claus, I'll pull it out of Christmas this year, again, to that code the student group did.

17:55 Dr. Alexandra Bitton-Bailey

So what does success look like in Joel's class?

17:59 Dr. Joel Davis

There was a young student that I had last year. And she was, you know, I think, I think last year, when a lot of students were home with COVID, there was a lot of pressure, there was a lot of I think it was a really difficult time for a lot of people. And I think I think we would all agree with that. But this particular student, I think she was having, you know, a really, really hard time. And she reached out about a quarter of the way through the semester, just about a month in and said, You know, I don't think I can do this. I think it's too complicated. You know, I've got too much other things going on in my life, it sounded to me, like she wanted to drop out, not just in my class, but maybe at the university, I had several conversations with her. And through those conversations, what I realized was, there was there's only some very small technical problems that she was facing with my particular class, and even with some of her other classes, that, that were kind of holding her back and keeping her from kind of being able to kind of push through that point, you know, in her life, and in that year. And I worked with some of the other faculty that were also her, you know, that were that were teaching those classes. And, and together with her, we managed to overcome all of those. And I think one of the, you know, one of the, I've only been teaching for a little while, but still my favorite moment in teaching was at the end of that semester, she wrote me a note and said, You know, I didn't think I could do this, but I did, you know, like you said, the beginning I got it, and I can do it. And I'm so happy that I got it. And honestly, it was a, it was a really, it was really emotional moment for me. Because it's really the goal, like I said, the beginning of that whole class is to get the students like that, through that, and that, you know, through that hurdle, and he was someone who was facing all of these really big challenges. And my class was just one just one more pressure point on her life. And, and here, I think what she was able to do is push past that and then view that as an achievement for herself too at the end where, you know, she didn't she didn't think she could do it. And then she could at the end. And to me that's what the whole class is for it. You don't think you can do it, but I'm going to show you can and then you do. So I was I was really pumped about that. You know, every now and then when I'm in the teaching grind, and I've got a great a lot. I look at that note that she wrote back and I'm like, Yeah, that's why I'm doing this right. That's why, that's why I teach.

19:58 Dr. Alexandra Bitton-Bailey

Thanks for listening to this episode of the teaching beyond the podium podcast series. For more helpful resources developed by the Center for Teaching Excellence at the University of Florida, visit our website teach.ufl.edu We're so happy you joined us and we hope to see you next time for more tips, strategies and ideas on teaching and learning at the University of Florida.