LAURA VOGT: Hello and welcome to *The Not So Secret Guide to Being a Berkeley Engineer*. I am your host, Laura Vogt, the Associate Director of Marketing and Communications in the College of Engineering. This week our podcast is split into two sections, focusing on courses for our first-year and transfer students. First up is Matthew Sherburne to discuss Engineering 92: Perspectives in Engineering. Welcome to the podcast Matt, thank you for joining us!

MATTHEW SHERBURNE: Thank you for having me.

LV: And tell us a little bit about yourself and your role in the College of Engineering.

MS: I'm sort of the jack of all trades for the materials science and engineering department and involved in many different efforts in the College of Engineering, so in the materials science department I serve on admissions committees, accreditation committees, a lot of the undergraduate curriculum committees so I'm largely involved with the education side of the department. I run a research group and for the college I ran the Singapore Berkeley research initiative for sustainable energy where we have a research center in Singapore focused on sustainable energy. I've got to research programs in Singapore and a research program in the Philippines on clean water. So I do do research but when I'm on campus much of my time is focused on education and that includes international education programs and I think that's how I got the job of being the instructor for engineering ninety two perspectives in engineering is that it's clear I'm involved in the educational side of things and the efforts. And that's where a lot of my interests lie. And so when the previous instructor got promoted and could no longer do this. They said “Ah, Matt you can do this. We got the perfect thing for you.”

LV: And can you tell us a little bit more about what Engineering 92 is?

MS: So, some years ago, I don't know exactly when, the University or the College of Engineering started admitting students that were undeclared. OK so traditionally students came in and they said I want to be material science or I want to be mechanical, electrical or what have you. And so the college, I think correctly, said “look not all students know what they want to do. And so let's admit some small number of folks” and I think it's about one hundred a year that are admitted that are specifically undeclared.

And so to help them decide what they want to do there's a fall course and a spring course I teach the fall course engineering ninety two. And the idea is to give the students an introduction to the broad field of engineering and to help them decide on what area of engineering they would like to go into.

LV: Oh that sounds great. I know it's geared towards our undeclared students but if you came in declared as something else and wanted to know more about other arenas that you could go into.

MS: Absolutely. We have students in the class... so I guess let's start with the class makeup. There's roughly a hundred students in the class each year. About 75 to 80 percent of those students are freshmen first year students. Then we get students that are sophomores that actually fit right into the question you asked was they were admitted into a specific engineering discipline and then it turns out they're not quite sure that's what they want to do. So they sign up for E 92 to get this broader perspective on what the different engineering disciplines do. And so we are absolutely open to the sophomores. And then interesting we get students that are admitted to other colleges on campus. And so I would say of the kind of let's just say 20 percent that are not freshmen in the College of Engineering probably half of that is the kind of sophomores maybe a couple of juniors that are thinking about I might want to try something else not the major I was admitted to. And then probably the other half is actually outside the college of engineering students that like just as an example might have got admitted to physics right. And then like I like the physics but I kind of think I might want to do something more applied. Or I've actually had students from biology right? And so they take E 92 trying to just go OK “do I really am I really interested in this more applied approach the engineering approach or do I want to stay with the fundamental science”. So it allows them in a very friendly non intensive classroom setting to explore their options.

LV: Would it be good for students that want to know more? Maybe not to major in something but to minor in it.

MS: So yeah if a student wants to minor in an area in engineering this is actually a great approach to figuring out if you don't know what area you would like to do what each of the engineering disciplines kind of does. And so I set up the course such that they get the students get exposed to both the academic side and the industrial side of each of the disciplines in the college.

LV: Oh great. So it covers if you want to go into industry or if you wanted to go more into grad school?

MS: Ah right. So what I've done is with the help of some fine folks in the college of engineering we have seven departments in the college. And so what I do. We have 14 weeks then and so I get one speaker who's a professor in the department and then I get one speaker who is a Alumni of the department at the bachelors lever and has gone out to the real world and is working. So the students sit there and they hear the professor speak say one week and the professor will talk about the curriculum why the curriculum is set up this way what the goal of the curriculum is and give an overview of the department and then generally you know the last half of the top will talk about their personal research and say you know I'm one example of research but in general this is kind of what we do and may have several slides about what other faculty do but talk kind of in-depth about what their research is. So students from that talk they understand OK. These are the courses I'd have to take. These are kind of this is the flow of the

curriculum. I kind of get a feel for the department. And then you get a feel for what the professors do at a much deeper level in their research.

LV: That's also a great way to meet more faculty on campus.

MS: That's right. So the students get it. If you include me the students will get eight different people from different departments that they get to see and interact with. And that's great. And so then say they're not set up in sequence it's when people can come give talks. But let's say you know the professor from one department speaks and then maybe three weeks later we have an undergrad student that has graduated is out in the real world. They will come in or I guess a former undergraduate will come back to campus and give a talk at A ninety two and go OK. So I went through this department right. I took the education and here's what I'm doing with it in the real world. I worked for company A and did all this and then I moved over to this area and so they give a perspective to the student about I take this degree what do I do with it in the real world. Right. And this was something I actually changed the class into. This was not what it was when I inherited the class. And it was a great class before I inherited it. But as I was involved in all the educational initiatives and the undergraduate curriculum and you know we had big meetings with undergrads once a semester and you start looking at the numbers and you start realizing that you get kind of roughly 50 percent of the students kind of go on to graduate school of some form shape and 50 percent go into the real world. OK and so when I took over the class it was kind of 14 weeks of Prof. Prof. Prof. Prof. And they all give great talks but I was thinking that if really this large chunk of our student populace goes to the real world we should probably make an effort to give them exposure to what happens in the real world once you get your degree. And so that's I changed the class such that it's kind of one professor one person from the real world.

LV: Excellent. I think that's a great idea because definitely knowing what course you take is a little different than what your career is gonna look like.

MS: Right. So we've had people that have come in from VM that talked about you know he was a great speaker he came in and he's like I started out in this major clearly not what I want to do I ended up being computer science and you know and I really didn't know what I was doing and he just tracked out his path and he was like Look I was not one of the greatest students. I'm doing great now because I did learn a lot and I use it. And he talked about how he uses the stuff he learned from his undergrad and how it has helped him advance his career. And then a little bit odd but one of the things that I find is many undergrads think they have to find the perfect Major when in reality there is large overlaps between all majors in the college. Right. And if you get a very strong foundation you can pretty much go and do whatever you want. So we had well she's actually a professor at the UCSF Medical School. But she did her undergraduate degree here in electrical engineering. So she's taken her electrical engineering skills and now applies this in the medical. And so the idea of this talk and she gave us a great talk. The idea was that look you get a firm foundation you can do whatever you want. And then last year we had he did his undergrad in bioengineering got recommended went to graduate school for medical devices

realized that's not what he wanted to do ended up going to law school doing a year I guess you would say internship or I'm not sure what that would be called but he spent a year at The Hague. And now he is a counsel for Google. But his undergraduate degree is bioengineering and he's like look so I don't use the math and the physics and all of that stuff I learn so much daily. He goes but I do get to use it when I interact with the engineers band I talk to them and they go oh he understands engineering we can talk to him and he goes So in that aspect the engineering degree has really helped me being a lawyer at a science engineering tech company.But he goes all of the logical thinking and all of the hard work and discipline I learned as an undergrad. He's like that directly translated into law school. And so the idea is to show you that well OK. So the classes I guess several ideas one to show the breadth of the College of Engineering both academic and what you do with it in the real world but also show that you get a degree it doesn't have to be the perfect degree for exactly what you want to do at this moment right. Right. You can take and more for yourself into other areas because there is so much overlap in all of these different areas.

LV: No. Definitely.I know we have so many students that come in that just need some more guidance on what to do and where to go and it sounds like it'd be a great way to start.

MS: Yeah I think it is. And then in addition I have. So I teach normal you know MSE 120 Materials Processing and computational material science in the fall. But I set aside specific office hours just for the E92 students. So of course they have access to the engineering student services and all the counseling there. But I view that since I am teaching E ninety two and I tell them this on the first day I am your unofficial engineering counsellor. If you have any questions if you want to talk to me about finding research or internships or just come because you're still really confused right or come and say oh I've figured out exactly what I want to do you know come to my office and so I have office hours specifically set up that are E 92 office hours.

LV: What a great resource that is. Thank you. Thank you. And I would be remiss to have you in here especially since you’re a lecturer and you do all these education stuff. What tips would you give our students as they're coming into their first semester at Berkeley to be successful Berkeley engineers when they start out?

MS: I think it's the same one. It's a very boring one but work hard. It's predominantly all the students that come to Berkeley are some of the best students in the state of California, the nation and the world have and so you get in a class and you look around and everybody else in that class was the top of the class. And so it's it's easy to get caught up in other things.
First time away from home and oh let's go to the football game and then I'll study Saturday night and then oh well you don't study Saturday night because you hang out with your friends and that rolls over to Sunday and than Monday comes and so it's really kind of time management and work hard and I guess when you need help or and if you're unsure on anything go talk to somebody whether it's me whether it's a counselor whether it's just one of your professors in the class. You know by and large the people here are here to help. And you know if I had students from physics department come talk to me. Right? And just because they're friends said that oh

you should go see Matt he's really easy to talk to and gives great advice. And so I had students from the physics department who weren't in my classes and I didn't know just show up at my door and go OK not sure you want to talk to me but well here's who I am and I'd be like Yeah sure come on in. I got 30 minutes. I'm not the only one that does this right. I can't speak for the university wide. I can speak for at least the materials department and most of my colleagues in the college of engineering that I know and interact with. They all behave this way. And so I think this is I would guess fairly much the norm across the university campus.

LV: Yes. The goal is we want people to be successful. Well thank you so much for stopping in today and for talking about the course and giving this an overview of it.
I'm really excited about the course I didn't know just how much you have that it's these two different perspectives on things so I really appreciate it.

MS: Oh my pleasure. I'm glad.

LV: I'm excited because I know I'm learning stuff than other folks are going to learn stuff. It's gonna be really good. So I appreciate your time.

MS: Oh it's my pleasure. Anytime.

LV: If you want to sign up for engineering ninety two perspectives of engineering the easiest way to find out when you're in schedule planner is you can actually just add it straight to your cart with your CCN number or class number which is 2 7 8 7 1 that's 2 7 8 7 1. This is the second part of a two part episode this week where we're talking with Tiffany Reardon. Thank you Tiffany for coming back to the podcast.

TR: Thank you for having me.

LV: So we had Matt in here earlier talking about engineering 92 and perspectives in engineering that is really geared towards students in their first year and wanting to know more about the different majors that we have here on campus and Tiffany is here this afternoon. She does civil engineering one 98 which is a seminar. Why did you tell us a little bit more about the seminar and who it's geared towards.

TR: Absolutely. So despite the name c-e one 98 it is available to all incoming transfer students and this is a seminar that we launched last fall that was designed to create community amongst incoming community college transfer students and to connect those students with each other and to ensure that they have resources to maximize their first year at Berkeley by meeting other transfer students and really getting acquainted with all of the fantastic resources that we have here at Cal.
LV: And when is it going to be available?
TR: It'll be Wednesdays from 11 to noon.

LV: And I actually have the CCN. So the CCN for this particular one is 2 8 6 0 2.
So if you're putting in into your schedule planner through Cal Central you can get there pretty easily with 2 8 6 0 2. There's a couple different things that fall under that CE 1 98. So you want to make sure you're picking the right one out of there

TR: And tell your friends because we do not have a limit. The only limit is how many transfer students we have coming into Berkeley.

LV: Oh fantastic. And it's actually here in Bectle in our Sibley auditorium. So get to know our building a little bit better and you can stop by the office if you wanted to. Tell me a little bit more about what's the structure of the class. So what are students going to actually do when they're in the class.

TR: So I designed the class because as some of you might know I run the transfer pre engineering program Tprep and in t prep we have 60 students and it's three weeks and we pack a lot into those three weeks and so there were many things that I felt that would be beneficial for transfer students to know about and to kind of learn about and go more in depth into. And then in addition I wanted to be able to reach transfer students that weren't available to do t prep in the summer. So we designed the course really putting together topics that were of interest and relevant to incoming transfer students I worked really closely with some of our current transfer students to design the topics I worked with our director of graduate outreach because many of our students are interested in graduate school and so this is a course where if you are interested in grad school you know you'll get a lot of information and also to talk about kind of the grading philosophy at Berkeley which is something that some students are unfamiliar with and really the kind of methodology behind the grading but also the learning process at Berkeley. The learning process of Berkeley is something that students you know sometimes in the beginning aren't sure what the expectations are and so as a result of being in this class we really give a thorough explanation of you know how to approach your engineering courses. Aside from that we also go in depth in terms of sub areas in the different majors. So many students come in and they know what they want to major in but then maybe they aren't aware of certain specializations or research that might not be in their major but is of interest to them.

LV: Oh that's excellent because we were talking about earlier and that's part of the podcast about the major that you're in isn't necessarily you're not tied into something that has to say I am a materials science engineer.

TR: Absolutely and one of the projects that students are assigned they have to work in a group and they will be given a research area and they have to find projects and those research areas they'll have to find you know companies that hire you know folks in those areas. And it really really kind of broadens their view of that of that area and I think personally I think that's the most beneficial part of this class is that early exposure that they might not get just in there you know lower division courses.

LV: I think it's great that you're also bringing all these students together so they can get to know each other easier you can be able to point out what other transfer students are or maybe have study groups that are specific to the transfer students.

TR: Absolutely. A lot of students will meet friends in the class that are in the same major or in the same class. And I realize that sometimes it's hard for students to know who else is a transfer student especially if it's in one of the bigger classes. So a number of students in this class you know make friends with each other and they you know are now study partners and it's just really great to have an opportunity to provide a structured venue for students to create this transfer community. The assignments are really assignments that you're going to do anyways. I'm hoping here at Berkeley one of the assignments is to create a résumé. Another one is to look up research programs like I mentioned the one of the projects is for students to present on an area of engineering and then also we have faculty speakers that come in. So I know that you know interacting with faculty is an important component for students to recognize. And so we actually have the faculty come to you. Also utilizing GSIs we have GSIs come in and talk about you know their kind of path and journey to grad school and then also how you can best utilize them so really I think that this course really kind of puts everything together that we you know transfer students will need. I've worked with transfer students for gosh the past 19 years so I'm pretty familiar with what you know is needed to have a successful transition to the four year school especially in an area like engineering which is really really unique.

LV: And thank you Tiffany for coming back to the podcast and sharing with one more thing that you do with us and the College of Engineering.

TR: And thank you and I hope to see many of you in the class this fall.

LV: And thank you everyone for tuning in to the not so secret Guide to Being a Berkeley engineer. And I will talk to you again next week bye.