

INTERVIEW

WITH: Vincent Manno; Robert Martello; Debbie Chachra; Jonathan Stolk; Alexandra Coso Strong

TIME: 17:33

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VINCENT MANNO: Hi. I'm Vincent Manno, Provost and Dean of Faculty here at the Olin College of Engineering. Thank you for your interest in Olin. We've prepared these video answers to the type of questions that we receive by visitors here at Olin. We hope that the answers to these questions will help you understand Olin a little bit better and provide the basis for our future conversations.

FAQ: What's required in the curriculum?

ROBERT MARTELLO: At Olin we have several categories of requirements. We have some credit requirements in different areas, such as engineering, which is the largest of the categories, math and science, and arts, humanities, social sciences and entrepreneurship. Within these categories we have certain required courses, such as first year design and project based courses, a user oriented collaborative design course in the sophomore year, and a senior year consulting project that lasts the entire year and is an in-depth project experience.

FAQ: What's your teaching load?

MARTELLO: Olin has a teaching load for faculty members that we call three plus courses per year. The three courses are pretty straightforward. Each faculty member picks one semester to teach two courses, a second semester to teach a single course. On top of that, we have a plus requirement, something extra beyond your courses. This could be supervising student research or working with students on an independent study project, or perhaps teaching a smaller, innovative course in an experimental manner.

FAQ: Where do students take arts, humanities, social sciences and entrepreneurship?

MARTELLO: Olin students take their arts, humanities, social sciences and entrepreneurship courses both at Olin and at our partner institutions. So at Olin, we offer these courses both in standalone forms, as well as in integrated forms in which a student combines arts, humanities, social science or entrepreneurship content with technical skills and content. In addition, Olin students can also take these courses at our neighboring institutions, Babson and Wellesley College, and in return, those students take some of their course work at Olin, too.

FAQ: How much choice do students have picking projects within a course?

MARTELLO: Students have varying levels of choices when it comes to selecting a project within a course. In some courses, the project or projects are specified by the instructor. So in that case, all students have a consistent experience. However, there are many other courses where

students have a good degree of choice. There might be one project for the semester, or there might be multiple projects in the same course. And the students will form teams and select projects based on their own interests and skill levels.

FAQ: How much choice do students have in picking courses?

MARTELLO: Olin students generally have a great degree of choice in course selection. There are many broad requirements at Olin that students can fulfill in different ways. For example, students pick a degree, and then they choose a selection of courses within that degree to follow. They choose an arts, humanities, social sciences concentration that gives them flexibility. And there are other areas like that where there's plenty of specificity. That said, there are also some required courses at Olin that all students need to take.

FAQ: Olin has about 360 students and 45 full-time faculty. What is it like being at such a small school?

DEBBIE CHACHRA: So I really love that Olin is such a tiny school. My education was at large public universities with very large classes, and I didn't really get to know my professors, and I only knew some of my fellow students. Whereas at Olin, I certainly know all of my colleagues, and I know all of my students. And in fact, I know almost all of our graduates at this point. So it's really lovely to be able to know students as individuals. It means that we can sort of talk and interact with them that way. I think it's occasionally disconcerting for students, though,

because there's no place for them to hide. If they show up late for class, we notice. If they miss a couple of classes, we typically will ask Student Life to check on them. So it means that they can't hide from us. But it also means that it's very hard for them to fall through the cracks.

FAQ: How much of the Olin Curriculum is project-based?

CHACHRA: A significant component of the Olin curriculum is project-based. And this starts in the first year. It starts with the first year of courses, including Design in Nature, the first-year engineering course. That design course is one of a stream of design courses, and all of those courses are really built around project. They culminate in the senior design project, in which students do authentic engineering projects in teams. So projects are basically sort of infused throughout the Olin curriculum. In addition to these core courses, they are a number of other courses that involve projects. And these could be humanities courses as well as the sort of math, science and engineering courses. So while projects don't appear in every course at Olin, they're definitely a significant component of the curriculum.

FAQ: Do Olin faculty do research?

CHACHRA: Olin faculty are significantly involved in research. So this can take a number of different forms. So some of our faculty are involved in disciplinary research, so math, science, engineering, where they do research, they get grants, they go to conferences, they publish in journals. A number of faculty, particularly humanities faculty, do research and write books,

right, which is so typical for that discipline. And there's a corehead of faculty who are really involved in engineering education. So besides the sort of academic dissemination routes, this also includes going to conferences or running workshops. In addition to those modes, we have a number of faculty who are involved in consulting, which again, is pretty common for engineering schools. And then we have a number of faculty who do intellectual work that gets generated and shared with the public in a wide variety of ways. But across the board, Olin faculty are heavily involved in research.

FAQ: How and where do students learn technical content?

CHACHRA: Well, we're an engineering school, so they learn technical content pretty much everywhere across the curriculum. In particular, though, because we tend to have a project based courses rather than the sort of more traditional lecture, lab, problem set, final exam based courses, the technical content that they learn, they learn in a situated way. They learn the technical content that they need to carry out the work that they're doing. They learn to evaluate the technical content as they find it, and they learn how to integrate it into the project. So rather than learning technical content for its own sake, they learn technical content in a way that they can actually use, and that they've already learned how to incorporate that technical knowledge into their engineering practice. And they'll take those skills with them after they graduate.

FAQ: How do you recruit faculty?

MANNO: We realized several years ago that because of Olin's special mission to be a change agent in engineering education innovation, that we needed to recruit faculty in ways different than traditional academic institutions. Our ads had to look different. The processes that we used to vet candidate had to look different. And the on-campus experience for those potentially selected as faculty members had to be different. We learned a great deal from the way we recruit our own students, which is a multistep process in which we not only verify or validate the credentials or someone, but more importantly get to understand how well they will fit into the community and how they will benefit from being part of the community.

FAQ: How do you hire faculty?

MANNO: I think the important part about thinking about hiring faculty is to realize that we see hiring as the first stage of faculty development. Faculty development is critical at Olin because we want people to be successful at Olin for the long term. The hiring process is straightforward and similar to other places, where a contract is offered, a proper title is established, and the faculty is provided with some support and resources to give them a great jump start. What's interesting about the Olin hiring process is that faculty are not hired into departments. We have a faculty of the whole. So an important part of the hiring process is to help the person navigate how they will fit in to the Olin academic ecosystem.

FAQ: What is Olin's tenure and promotion process?

MANNO: Actually, first of all, Olin does not have tenure. Rather than tenure, we have a reappointment and promotion process. The faculty are on renewable multiyear contracts. The important aspect of the reappointment and renewal process is that it's an opportunity not only annually but on a periodic basic basis, every six years or so, for the faculty member and the institution to take a deep reflection on what their, what the direction of the individuals is, and what is the direction of the institution, and are they aligned? In terms of promotion, we do have the traditional ranks of assistant to associate and associate to full professor. Rather than gaging faculty performance on teaching, research and service, our faculty expectations are to develop students, build and sustain the college and have external impact. We expect that faculty to have evidence of both excellence and risk taking in those domains.

FAQ: What is Olin's faculty retention rate?

MANNO: Faculty retention rate is a topic that often comes up when people visit Olin, especially once they learn, or if they knew already, that Olin does not have a tenure system. Sometimes the assumption is that without tenure, the faculty retention rate will be relatively low, and the turnover will be high. The facts show that that is not the case. We have approximately 45 full-time faculty members, and in any one year, zero, one or perhaps two people leave the faculty. So overall, the statistics are rather low. Now, what's important is, why will those one or two people leave the faculty each year? For the most part, it's not because of a performance issue. It is because of a life issue, having to do with family, or other activities, or to take on a different

opportunity where that person will have the opportunity to spread Olin's change and innovation methodology to another institution. And we view that a success. Of course, there are situations, few and far between, where the contract renewal is based on performance.

FAQ: What do students get out of project-based learning that they may not get out of conventional classes?

JONATHAN STOLK: At Olin we think about project-based learning as a really flexible pedagogical approach that enables instructors to think about goals that they might not be able to achieve in a traditional classroom. So things like communication or systems thinking, creativity and design. Maybe you care about your students developing self-directed learning skills or intrinsic motivation. You can imagine designing these into a project-based experience in a way that is really difficult to attain in a more traditional classroom environment.

FAQ: Is there proof that project-based learning is better for students?

STOLK: There's a couple of decades of research that illustrates that project-based and other active learning approaches do that traditional learning of conventional approaches don't do. One of the big things is, it enables students to develop more sophisticated cognitive skills. So if you care about things like analysis or creativity or synthesis or critical thinking, you'll find that it's easier to support these in more active environments. But it's not just cognitive. Project

based learning enables you to support student learning that is more social in nature. So relating to other people, communicating with others, collaborating with others. But also emotional and motivational goals and psycho-motor, hands-on or mind-body connections in learning.

FAQ: How do you approach grading in project-based classes?

STOLK: The first thing you have to figure out in a project based class is, what is it trying to do? And different classes have different types of project with different goals. And of course, all the grading and assessment has to be aligned with those goals. So for example, I might be teaching a design class and have goals around divergent thinking and idea generation, understanding of users and communication of a design. That looks a little different than a more analytical class, where I might have goals around experimentation or scientific inquiry or quantitative and qualitative analysis. And so for each of those two courses, I'll have to develop a structure of grading and assessment and feedback to students that is appropriate for that particular project.

FAQ: How do you form student teams?

ALEXCANDRA COSO STRONG: So I would have to say forming student teams is one of the hardest pedagogical challenges we face at Olin. Every instructor has had good experiences with some models and not so good experiences with others. And those models are usually different per instructor. So we really think about a couple of key things with team selection, one of

which is, when does the course take place? Is it a first, second or third year course? Or is it for our fourth-year students? How long are students on teams? Is this a short, two-week project, or an entire semester project? What type of project is it? Is it client based? Is it more about students really digging into content? And lastly, what is the size of the team? Is it a pair, or is it a large team? And so you'll see that different faculty will take different perspectives on what to do next. So it could be that they help form the selection by asking lots of questions of our students, getting an idea of their interests, trying to understand, do they want to learn something in particular on this project? Are there students they don't want to necessarily work with? Or are there students they really want to work with? So we'll ask lots of questions. And then the faculty members will try to put together a team that will be most effective.

Alternatively, they can have the students select teams, which happens mostly in the upper level courses and is typically partnered with some sort of scaffolded activity in class to gauge students' interest and help them form the most effective teams.

FAQ: How do you grade team projects?

STRONG: So at Olin, faculty approach grading team projects from different perspectives.

Here's how I typically do it. I try to focus on three main things, the first of which is that I don't make an assumption that students know how to work on teams coming into my class. So I create some sort of activities to help them think about giving each other feedback, really creating a team agreement up front, or something similar. The second thing is that when I grade the final project, I try to come up with a systematic way of presenting my subjective

feedback. So I break it down in a form of a rubric, and try to be able to focus in on targeted areas that the students know about ahead of time that I'll be giving them feedback on. And lastly, I try to get input from the students themselves. So through something like a peer and self-assessment, or individual meetings with students, I try to understand what they thought they did well, what they could improve on, and also how did their team members do? And how did the overall project go? And then I bring all this together to try to come up with a final grade or assessment for a particular project or team.

FAQ: What does team teaching look like at Olin?

STRONG: So at Olin College, there are a lot of different flavors of team teaching, from co-teaching with one other instructor, to many other instructors. So let me give you an example of what this might look like. In the context of our first year, first semester courses, we have a course called modeling and simulation. In this course, we have three modules of projects that range from pharmacokinetics to mechanics. And we have usually four teaching, members of the teaching team. So these different members bring their disciplinary backgrounds that might be, for example, mechanics, or something in the health or biomedical space. So they may be leading from one of the disciplinary perspectives on a module, but it's actually the whole team that works together to think of the activities, to lead sessions in the auditorium, to interact and support the students as they work on their problems. And this is one of the big values of team teaching, is at the end of the day, it's allowing us to bring together people's different perspectives, backgrounds to create an experience that's really rich for our students.

FAQ: Once faculty members start at Olin, what kind of training and support do they receive?

STRONG: So it may not surprise you to know that when new faculty come to Olin, we treat the design of their first-year experience very similar to how we treat the design of our students' learning experiences. So with the faculty, we want to think about, how do we scaffold their first few months at Olin, such that they can build self-efficacy and confidence in their teaching, and ultimately design learning experiences for students. So let me give you an example. So when I started at Olin three years ago, I was a co-instructor in Design and Nature. In this course I began the very first week just trying to learn, understand. Who are my students? What are the types of activities we're designing? What are the potential pitfalls I might fall into? And then over the course of the term, after observing my co-instructors and asking lots of questions, I started to really lead my own experiences with the students, giving them feedback based on my previous experiences, and ultimately helping in the design of the activities for the class. So at the end of the semester, I had a lot more confidence in what I would be doing moving forward, and the experiences I designed.

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