

Making College “Worth It” – Season 3, Episode 4

Paths of Inquiry: Course-based Undergraduate Research for First-year Students

Nolan Schultheis (00:05):

Welcome to Making College Worth It, the show that examines engaged learning activities that increase the value of college experiences.

Jessie L. Moore (00:11):

In each episode, we share research from Elon University's Center for Engaged Learning and our international network of scholars. We explore engaged learning activities that recent college graduates associate with their financial and time commitment to college being worthwhile.

Nolan Schultheis (00:27):

I'm Nolan Schultheis, a third year student at Elon University studying psychology with an interest in law. I'm the Center for Engaged Learning's podcast producer and a legal profession scholar.

Jessie L. Moore (00:37):

And I'm Jessie Moore, director of Elon's Center for Engaged Learning and a professor of professional writing and rhetoric. In the center's 2024 national survey of recent college graduates, 42.7% indicated they had participated in undergraduate research. Since undergraduate research supports students' development of NACE or National Association of Colleges and Employers, career readiness competencies, things like critical thinking, communication, and professionalism. Many colleges are striving to increase access to undergraduate research experiences, sometimes through course-based or course embedded research.

Nolan Schultheis (01:14):

In this episode, we'll talk with Professor Cindy Fair and Dave Gammon about how colleges can scaffold research activities across the curriculum. And we'll focus specifically on a first-year course that helps students learn how to ground their research in a good question. Let's meet our guests.

Cindy Fair (01:29):

Hey, I'm Cindy Fair. I am a professor of public health and have been here for 27 years. And I was part of the crew that began Elon College Fellows program, and we decided to foreground the importance of questions into a undergraduate research process.

Dave Gammon (01:56):

And my name is Dave Gammon. I'm a biology professor at Elon University. I began teaching here in 2006 after the Elon College Fellows program was already up and running. And in 2011, January, I began teaching the winter term course that Cindy and others created, Tom Mould, Shawn Tucker, Tod Lee. Then a couple years after that, I began coordinating this course and I have continued to do so ever since.

Jessie L. Moore (02:27):

And Dave and Cindy, all three of us have taught the course that you both mentioned, Paths of Inquiry, which is part of a four-year academic and professional program for students who are passionately committed to exploring the breadth, depth, and connections within the arts and sciences. Cindy, could you tell us about the early goals of that course, Paths of Inquiry?

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Cindy Fair (02:48):

Absolutely. It was designed to be a time when students gathered and began to learn about the different disciplines within the College of Arts and Sciences and how different disciplines think about questions, answer questions, and how those questions are valued within various disciplines. And so they were broadly broken down into social sciences, math and natural sciences and arts and humanities. And we asked students to develop a question focused more within their own discipline, or at least the one they thought they were going to have. And then they had to choose a question from another discipline to put that hat on and try and understand how this question might be supported within the arts and humanities rather than mathematics and statistics.

Jessie L. Moore (03:47):

And I've always appreciated that push to help students think beyond their own branch of arts and sciences. I have this vivid memory when I was teaching the course of Todd Lee representing math and natural sciences, talking about assumptions in that branch. And as I was representing the arts and humanities, and we were at a board mapping the different assumptions in our areas and wishing we could just wrap the board around because there were similarities that might not be immediately clear to us or our students until we start digging into them.

Dave Gammon (04:23):

It's fascinating to hear Cindy's explication of how things began. And I think the basics, the fundamentals are still very much intact. It's still very much a course about research questions, how to ask interesting questions. It's still very much about interdisciplinarity moving beyond just your branch, understanding how to ask questions in the different branches. And another big component of it, the third big component is the community. This is the only course taken by Elon College Fellows as a cohort. So we really try to push that community concept throughout the course. I think probably the biggest thing that has changed is, and this is, I'm going to blame COVID or credit COVID for this because it forced us to innovate and rethink a lot of things because we couldn't go to DC for one year. So what ended up happening is we got rid of the expert letter.

(05:19):

So students used to have a letter to the expert that in which they featured a question. We decided we wanted to do an elevator pitch tournament, and we decided that rather than letting them avoid one of the three branches, we would push them into all three branches and force them to come up with an elevator pitch question as part of a collaborative group of students in each of the three branches. So that's what we do now before going to Washington DC. And then afterwards, we have them write a grant proposal that can be in any of the branches or that could be interdisciplinary.

Jessie L. Moore (05:56):

I love hearing that addition and the encouragement to explore all three branches. Two is already a push, but three sounds exciting and innovative, particularly with the elevator pitch. So that's awesome.

Nolan Schultheis (06:08):

Yeah, I was just about to say you had actually just touched on the trip to DC, but the question is, part of this course is a five-day trip to Washington DC to observe the arts and sciences in action. How does that experience support the vision of the course and its learning outcomes?

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Dave Gammon (06:24):

It certainly does. Washington DC is a fantastic place for Elon College Fellows to explore because there's so much going on. Of course, it's good for political science, but it's also amazing for the arts and humanities. It has a lot of great science going on there, a lot of great math. So there's just a lot of interesting think tanks. And what's amazing is that when the government is not shut down, which I know is a big assumption at times, then there's a whole lot of free stuff to do that's really high quality and wonderful people who are willing to donate their time to meet with our students without any real compensation other than the good feelings that come from meeting with students. So in any given year, we'll have the wonderful opportunity to meet with over a dozen professionals in Washington, DC who are working on world-class research questions and projects, and they're willing to interact with our students and help to advise them and nurture their ideas.

Jessie L. Moore (07:24):

And Dave, at this point, so we often have called those opportunities tours, for lack of a better term. So how many tours do students do while they're in DC?

Dave Gammon (07:34):

So when I first entered the course as an instructor, Jessie Moore was the coordinator and she had five tours per student, or I'm sorry, five tours per faculty member, and actually the students had to sign up for five as well, and we still do that. So five per instructor at least, and five for per student at least.

Jessie L. Moore (07:57):

And that really helps the students get variety. And I think sometimes it also pushes us as instructors to even perhaps think a little bit beyond our disciplinary comfort zones in the same ways that we're asking students to. So that can be kind of a fun teaching opportunity as well.

Dave Gammon (08:14):

I want to tell a fun story about that. So because the instructors are really collegial and always looking out for each other, like last year, Alexa Darby was, she wasn't available to do her tour. She got sick. So I ended up covering her tour, even though it was all about psychology and public health issues. And I'm like, okay, I can pretend to do that. And I remember going to a place where I talked to somebody at the Department of State and it's a great course to push everybody out of their comfort zones. Absolutely.

Jessie L. Moore (08:47):

Cindy, how does that compare to the earliest experiences of DC in this course?

Cindy Fair (08:53):

It's actually quite similar. We had the tours, we signed up for them, students went around and attended the tours they were interested in. It was an absolute joy to be part of this. And the community piece was particularly powerful. I know, for example, for the first night we were in DC, I always took whoever was interested in going to an Ethiopian restaurant for dinner. It's very hard to do that around here. And it was just really fun to get to be with them in their own space and see them be in a very, very busy environment where we have so many alumni and so much important work is being done. And I also remember coming home exhausted, to be honest.

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Jessie L. Moore (09:47):

And just to give our listeners a little bit more context, this course at Elon is a three-week intensive schedule. When it's meeting on campus, it's three hours a day, five days a week, and then about week three, it goes to DC for five days, and then there's a little bit of time together on the last bookend part of the winter term semester. So it's very fast-paced and very intensive, and team taught with 50 or more students. Dave, how many students were in the course this past January?

Dave Gammon (10:26):

This past January was a blip, I hope, but it was 85. And I believe we ended with 85. We had as many as 87, I think.

Jessie L. Moore (10:37):

Wow.

Dave Gammon (10:38):

Yeah, that was logistically really crazy.

Jessie L. Moore (10:43):

And I want to come back to that in a moment as we think about the logistics of this type of experience. But I'm also curious, on one hand, Cindy, I can see DC just has so many experiences. It's a logical spot for that type of one-week study away that's embedded in the course, but were there other guiding principles that led to the decision to make DC the destination as opposed to other cities?

Cindy Fair (11:15):

I think it was just decided that it was a reasonable distance away and had so much to offer everyone. I don't really remember discussing other cities, but just I think landed on that in part because Tom Mould was on our team. His dad was living in the DC area and had done similar kinds of work with students coming to DC for a short amount of time. And so we already had these built-in relationships with the places that his father knew about and worked with. And that just made it a very easy place to choose in part because we do have so many alumni there as well.

Jessie L. Moore (12:03):

And I think that those relationships really matter in the selection of the place. If others are listening about this and listening about this course and thinking about how they might replicate it in their context, DC is a bus right away for us. We can put all our students and faculty on a bus and head on up. We do have a lot of alumni there. We used to, and Dave, you can share if we still do this, but have a dinner with alumni so that our current students get to have connections with alumni from the school. And then those alumni are also in some of the places that we want to take students so that they can see the arts and sciences in action.

Dave Gammon (12:42):

Yeah. The alumni piece is currently in flux. We have done a dinner until recently. We found that when students would go to the dinner, they might get lucky and sit next to an alumnus at a table and then

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maybe talk to that one person and then mostly not get to talk to other people. So then we introduced a mix and mingle event, which was chaotic at best. And then we are currently facing some budgetary issues. So what we hope to do is to have multiple alumni events that are sort of like the first night that Cindy talked about where they go to a restaurant, that there's a couple of alumni that we let all the students know about it and that the students all get a chance to interact with a subset of the alumni.

Jessie L. Moore (13:35):

That's a great evolution though. And I think it also leads into my next question as listeners think about how do you adapt this type of course embedded experience into a university in ways that are sustainable and budgetarily feasible. At various times, we've had conversations here at Elon about making a pass of inquiry experience available to all students, but the DC experience is challenging to scale. It has a cost associated with it. And there's the people component of trying to be able to sustain meaningful relationships between students and faculty, but then also with alumni, with our contacts in DC. So if listeners are thinking about adapting this type of model as a foundation for undergraduate research at their colleges and universities, what types of local opportunities do you think might offer similar learning experiences?

Dave Gammon (14:35):

Local opportunities here in Elon area?

Jessie L. Moore (14:37):

Here or generically in other communities. If you couldn't go to DC, what would you look for as something more local to try to not replicate, at least adapt, to create a similar experience?

Dave Gammon (14:54):

Right. I think it's a fascinating question. And I love, Jesse, that you pointed out the importance of relationships because it's the relationships among students, the relationships between students and faculty, the relationships between faculty. Those relationships are everything to making this thing golden and memorable. I think it would be possible to do something like this course on closer to campus and to save a whole lot of money, but I think there'd be serious trade-offs in doing it. Just thinking locally around here, we have some local battlegrounds that might be interesting to students that we have the Civil Rights Museum in Greensboro, which is about a half-hour drive from us. That's an amazing museum that students would love. We have some art museums, I believe, in Raleigh, so it's about an hour away, so it could be an afternoon trip or something like that. There's some science museums out there.

(15:50):

So I think it could happen. There's some nature preserves and things like that, but it comes to what trade-offs you're willing to accept. I think a lot of the appeal to students is that they're going someplace special that's not at all Elon, and you can't replicate that at all by doing something locally.

Cindy Fair (16:09):

Yeah, I think there's something about being immersed in a new context, even though many of them had gone to DC or maybe even from DC, but it's different to go there with the idea that you are looking to learn about questions and you're looking to see what people who have degrees from the College of Arts

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and Sciences are doing as their careers. And it's just a very ... I mean, just being able to sit around and have breakfast with your faculty is very different than, let's say, "Oh, let's all meet up at the art museum." So I think there is an immersive piece to it that I think would be hard to replicate with smaller day trips.

Nolan Schultheis (16:54):

I think it almost seems like DC is kind of like the golden goose egg in terms of areas to do this class in. Because when I look at the structure of the class and the way it's designed, it almost seems like there's so much happening at once that there's only spots that can actually host all these different walks of research and application. And I think the reason DC fits so perfectly is because they've kind of centered their city around that idea as well. So I think the synthesis behind the class material and the way the class is structured and then relating to the actual location, it almost seems too perfect.

Jessie L. Moore (17:34):

Just everyone is making me think that for other campuses, thinking about what's the accessible DC. If DC is not a place that you can take a group of students to on your budget model, then what are some of the other places you might look to? I'm thinking about if you're on the West Coast, maybe it's LA, maybe it's Seattle, Portland. If you're in the central US, maybe it's Dallas or Austin or something like that. But thinking about the other geographic regions where you have alumni populations that you can interact with because I do think that that is a really helpful piece and then the variety of opportunities for exploring the arts and sciences in action.

Nolan Schultheis (18:21):

How does student performance differ between four-year course scaffolded research experiences like in the Elon College Fellows program in one semester or one-year research experiences not associated with the Fellows program?

Cindy Fair (18:35):

Oh well, the Fellows program rocks. It is the best scaffolded research program we have at Elon in the sense that they have this class that foregrounds the questions. They have a sophomore seminar where they go into their disciplinary branches. They have a junior seminar where they are in their branches, again, with being mentored alongside other students. And I mean, the whole process is about peer review, peer support, and then they execute that research the following their junior and senior year. It is a beautifully scaffolded model that is very, very different from a student who's doing a semester or a one-year project. And I'm all about that too. I love that piece, but the scaffolding and the support that goes beyond just the individual mentoring relationship and the community that comes from learning what your friend in psychology is doing and what your friend in biology is doing at the end is just really unparalleled.

Dave Gammon (19:41):

I concur with everything Cindy said. The scaffolding is quite remarkable. The support is there, it's solid, and the community makes it really special. So I've mentored a couple dozen students and some of them have been Elon College fellows and others have not. And the Elon College Fellows, they got something special going that gives them some serious advantages.

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Jessie L. Moore (20:07):

And one of the reasons that we wanted to visit with both of you today about this course is we are thinking in this season of making college worth it about course-based undergraduate research, sometimes also framed as course embedded undergraduate research. And it seems to me that this course and the structure of the fellows program is a great model of scaffolding research experiences across a curriculum and across a four-year experience. So that it's not just a one-time experience and one course, but there's a first-year course, to Cindy's point, laying a foundation and then second and third-year courses that are building on that foundation, not necessarily focused exclusively on students' disciplinary research, but certainly introducing the strategies, the tools, the ways of thinking that will help support their undergraduate research projects.

Dave Gammon (21:06):

One thing that I've noticed that maybe could be tweaked or at least thought differently reframed maybe is the Elon College Fellows program and research programs generally do a pretty good job of gearing students towards discipline-specific research, interdisciplinary research where it's truly interdisciplinary drawing on multiple departments, it's hard. It's harder to nurture that. And I think that the Elon College Fellows program has some things to learn there. I'm torn on the value, the comparative value. There's value in discipline research, there's value in interdisciplinary research, but there's also trade-offs in both. So I think a lot of it kind of depends on the student, depends on the question, depends on the mentor, and a lot of factors.

Jessie L. Moore (21:51):

And their long-term goals too of what they're trying to achieve. Yeah, I appreciate that. We've talked a lot about the positives of this experience. I also want to acknowledge that there are some challenges that are associated with these opportunities. I will note having taught both in this study away experience with the Embedded DC Week and also having taught abroad, I had more trips to ER rooms in the DC week than I've ever had teaching abroad. That's a very specific type of challenge, but I wonder if we can just be transparent about some of the things that we need to think about if we're facilitating these types of experiences. What's maybe one challenge that you would name as just a cautionary note to plan ahead for and think through if you were talking with someone who was developing a similar program?

Cindy Fair (22:46):

Well, one thing for sure is you have to have a conversation about alcohol use. Todd Lee would stand up in front of the class, all six, whatever, foot, and he looked at them and he said, "You drink, you fail, and we will send you home." They put the fear and they were relatively well behaved. But that is a conversation that you have to have and you have to come up with what is a reasonable reaction to managing those kinds of situations.

Jessie L. Moore (23:17):

And for context, Todd Lee is this very kind soul who normally is not quite as abrupt in his presentation to students. So that had an extra impact when you had him going into that mode.

Cindy Fair (23:32):

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Yes, we were all very scared.

Dave Gammon (23:38):

And it works. The students, in the whatever that is, 14 years of working with these students, I've never once had an incident, any incident with any of them drinking. I don't know if it was like that for you, Cindy.

Cindy Fair (23:51):

No, we were good.

Dave Gammon (23:52):

Yeah. Yeah. So I think the problems that are inherent to study abroad are a problem with this course, students that don't like their roommates, students that get sick and have to go to the ER, students that want a special accommodation because they really want to meet their boyfriend and they want to see their parents. And we're like, "We're not here to see parents and boyfriends and things like that. " But yeah, there's definitely trade-offs. You're right, Jesse.

Cindy Fair (24:18):

I do think a challenge that people who are trying to replicate this kind of model need to consider is that it is not only financially resource-heavy, it is faculty resource-heavy. So you need to have the ability to have four or three or four people teach during winter term, which means they are not teaching in their home departments, and that can cause tensions within their home departments. And the same thing with the junior seminar. That means you're not teaching a class that's in your discipline. They're just those kinds of tensions that especially when we are in a context of a hiring frost or freeze, people become very protective of their home department courses, rightfully so. And on the other hand, you really want your top people doing this thing with the fellows because they are going to be the students that move forward and shine and do wonderful things for Elon.

(25:16):

So there's definitely tension there.

Dave Gammon (25:19):

I'm glad you brought that up, Cindy. In addition to the institution, there needs to be the institutional commitment to this interdisciplinary course. It also, it can be difficult for certain kinds of faculty. So I and many faculty that I've worked with, they really value academic freedom as they should, and having control over what happens in their course. This course is not about controlling. I try to control what I can as coordinator, but just to give one example, and I know Cindy's going to know exactly what I'm talking about, you cannot control Shawn Tucker. It just does not happen. Shawn Tucker is Shawn Tucker. And meanwhile, he's in the same room with, say, Alexa Darby and there might be friction. And who's going to be mediating that and how are the students going to respond and how messy is it going to get? And that's all right.

(26:14):

For faculty teaching this course, you have to be willing to give up control, to be humble, be a good communicator, a good listener, and a good adapter.

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Jessie L. Moore (26:23):

And I love that reminder that there is also this team teaching component that requires a lot of flexibility. It requires, as you said, adapting. And the folks that you named for our listeners, we've got an art faculty member who is very boisterous, does a lot of the art tours for the course, also teaches about humor and brings that humor lens to a lot of his life and activity. And Alexa Darby is a psychologist and has also done a lot of work in educational spaces with community-based learning and the like. So they're all bringing different perspectives and different experiences, different prior knowledge together. And as faculty, we get to learn from each other even as we are supporting our students and their development as learners as well.

Cindy Fair (27:11):

I think the opportunity to be with other colleagues from different disciplines has been the absolute highlight of my time at Elon. And we got to model for students what it's like to have academic discourse and disagreements without resulting in people fleeing and crying and posting on social media and canceling each other. And we had some intense conversations between math and natural sciences and arts and humanities and social sciences with some pretty rigorous banter that went back and forth. And I think the students were a little bit like, "What are they doing? The grownups are fighting." And I thought it was wonderful because we can have these rich disciplinary conversations and learn that you can disagree and really, really, really good friends and colleagues. And I have very fond memories of those classes together.

Nolan Schultheis (28:10):

I like, Cynthia, how you made the connection, but also you said that it was a good challenge of having to go outside of your discipline and work with other people that were interdisciplinary. And then Dave, I know you had said that the challenges you encounter in the course are very similar to the abroad challenges. And I thought it was really interesting to hear all this because I was seeing connections within myself because I went abroad last J-term to Brazil, and that's a sports management class really. And I'm a psych major, so I knew no one. It wasn't really anything that would benefit me in terms of what I was learning for my academics. It was purely just out of interest and wanting to see a different country. But when I got down there and I started talking to people and I started interacting with different areas of expertise, I had an amazing time.

(29:05):

I met people that I still talk to today and the two professors on that trip, I would consider two of my better friends now even. So I like what interdisciplinary work can do for connection and community. Is there anything else you'd like to share about how course-based experiences like passive inquiry might increase access to or enhance undergraduate research?

Dave Gammon (29:31):

One of the things that a lot of high school students come out of high school thinking is that knowledge is produced by textbooks as laid down by the gods above who know everything. And this course sort of turns that on its head and says, no, knowledge is discovered from below by people who are making educated guesses and then calling them hypotheses and then going and collecting data or making their own independent observations and then trying to scramble it all together and make sense of it. I think it's a very disorienting process for students to see the beginnings of the research process and how messy

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it often is, but also how exciting it is and how empowering it can be and to realize that they can play a role in it and have a part to play. As Cindy said, I mean, it's a highlight of my career to teach this course, to see students and the way they light up and the way they mature academically, but also on a interpersonal level, social skills and everything.

Cindy Fair (30:45):

And I guess the other thing I would say is that much to what Dave was saying, this is an unsettling class. I used to joke that I could put a graph on the board and I could track heights of anxiety. And I'm like, you're right at the top now and it's going to come down once you have a better sense of where we're going with this because people believe they come to college to find the answer. We are asking them to find the question that totally turns everything they've ever thought about on its head and then that they are part of sitting at that table and having conversations where they themselves will actually be constructing knowledge. I mean, it's just so exciting to see. I would love for more students to have access to that kind of experience of being a contributor to a conversation rather than a recipient only.

Dave Gammon (31:56):

I want to add one thing. That was really beautifully put, Cindy. Thank you. I also want to add in the interdisciplinary part of that so that a student, not only are they contributing to the conversation in their own major, their chosen interest, but we're pushing them to go say, "Well, can you do it in math? Can you do it in music? Can you do it in art history?" And I think it really is unsettling for them, but for the students who are up to the challenge, "Oh boy, is it empowering?" And they will remember it for life and they'll gain skills that will serve them for decades to come.

Cindy Fair (32:32):

I guess the only other thing I would add is the community that takes place in that junior seminar where students are in their branch and they're all being mentored by a faculty member and they come together and they get to know each other's research so well that they would often come to class and say, "Oh my gosh, I saw this article and I thought of you. Let me send it to you or I listen to a podcast." And it reminded me of what you're doing. And it just began to expand the boundaries of how students conceptualize their own research, but then they became a community of scholars together and supportive of each other's work. And it's lovely.

Jessie L. Moore (33:17):

And I love that that illustrates the scaffolding from the first year experience where they're figuring out how to ask a good question to their junior year when there's a disciplinary community that they're really committed to not only their own research, but to supporting each other and the research. I think it's just a beautiful example. So Cindy, thank you for being part of the team that founded this course. And Dave, thank you for your care in seeing it through its current evolution. And thank you both for your conversation today. We've really appreciated visiting with you about this as one, perhaps atypical, but really fun and interesting example, of course, based undergraduate research. So thank you for your time. So Nolan, what stood out to you in this conversation?

Nolan Schultheis (34:15):

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Initially, I wasn't sure what I was looking for based on the content of what they were saying, but as the conversation went on, I realized that this theme of interdisciplinary practice and kind of just community cohesion are probably two of the biggest factors that add to the effectiveness of this class. I would say that they were really, really insistent on the idea of you can have your expertise and you can have your area that you enjoy focusing on, but you should also entertain other areas because that will, one, not only benefit you, but benefit other people in the classroom, which then ties into the community aspect. So it's all just a pretty well interwoven system they have going on.

Jessie L. Moore (35:00):

Absolutely. And I'm a little bit biased because I have also taught this course that we were talking about, but it was one of my favorite teaching experiences. I think I taught it for five years and coordinated it for four, and it was just a fun space to lean into asking questions and thinking about disciplinary assumptions and how sometimes our disciplines have more overlaps than we might anticipate. And thinking and now in some of the work that I do, fostering engaged learning, I think that this type of course also sets students up for exploring what I'd call wicked tendencies or wicked challenges, but it's a space where students get to think about not just how they might approach a question from their discipline, but how people with other disciplinary backgrounds might revise the question or reframe it in the assumptions that would guide their work. So it just opens up a lot of possibility for how we think about research, but also how we think about understanding the world around us.

Nolan Schultheis (36:11):

And that also kind of ties into your point with the community and cohesion again. It makes those challenges and those fears and persistent issues a little less of a problem.

Jessie L. Moore (36:33):

Once again, I'm Jessie Moore.

Nolan Schultheis (36:35):

And I'm Nolan Schultheis. Thank you for joining us for Making College Worth It from Elon University's Center for Engaged Learning.

Jessie L. Moore (36:42):

To learn more about course-based undergraduate research, see our show notes and other resources at www.CenterForEngagedLearning.org. Subscribe to our show wherever you listen to podcasts for more strategies on making college worth it.