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Good morning, good morning, Penguin Nation. Welcome back to our*Penguin Pathways* podcast. This is a podcast where we discuss the good work happening around the college related to Guided Pathways, which is a student success framework that aims to reduce equity gaps, increase student achievement, and overall, improve our student outcomes so that they can achieve the goals that they're here to achieve. So it's great to have you all with us today.

I'm really excited about the guest that we have for you. I'm going to be talking today with Robert Weston. He is our math division chair. And he's going to share some information with us about some of the good work happening in math.

For those who aren't aware, you might not be surprised to hear this, but math is extremely important for students' progression. In order to obtain a transfer degree, they need to be able to complete college level math. And many of our students come in not necessarily at college level math.

So there's some remediation that needs to happen at times, and it can be a make-or-break sort of thing. So we want to hear all about the good things that we're trying to do in the math department to help students be more successful and achieve that goal. So welcome, Robert. It's great to have you today.

Thank you, Rhianna.

Awesome. So our first question-- what are some of the challenges that students face in math?

Yeah, math is a discipline that requires a lot of focus of attention and a real understanding of some deep and abstract topics. The real three things I see a lot of students struggle with-- frankly, it's not even the math. It's really time, skills, and attitude.

So on the time piece, we all know that for each credit we take, the general recommended advice is two hours of outside study. So for about 15 credits-- three 5-credit math classes-- you're looking at about 30 hours of study outside of those courses. That's a total of 45 hours a week.

That's a lot. That's a lot for a lot of students who are also maybe working full-time, who have families to support. So that time piece can be really important to make sure that we have enough time to do the course material, that we have enough time to read the textbook, do the assignments, and so on.

Skills-- quite frankly, a lot of students think that they know how to study. And in reality, a lot of what they've done in K-12 doesn't really apply to the college environment. Faculty of mine says, it's like having a map of New York and Paris.

High school might look like the map of New York. College might look like the map of Paris. But if you have the map of Paris in New York, that's not going to help you much.

What you did in high school might not work, so trying new stuff in terms of developing skills, I think, is a big challenge for students. They don't know what to do exactly. In the math department, we've been trying to really clarify that kind of foundational skills for a lot of students in terms of having reading assignments and using group work, really having students work together to develop these skills.

The third thing I see a lot is attitude. And the idea that math is just focused on the answer isn't really accurate, unfortunately. There's a lot of other things to do in the topic, which I'm sure we'll discuss.

Excellent. So I think a lot of us can relate to the scariness of math, if you will, for some people. So what are some of the Guided Pathways initiatives that you've been doing in the math department to try to help students be more successful?

Yeah, so we have three primary projects right now. The first is Level Up. Level Up is a summer program where we're trying to help students complete College 101, get ready for their college courses, and then also do some math remediation-- math review from topics in high school, really focus on getting them to college level math placement.

That actually happened this last summer, and it was great. We had nine students, three tutors, three faculty there, really helping students along. And it was a great program, and we're looking to do it again this next summer with a different model. We're learning from what we've done. We're going to change it up just a bit.

The second project is Business and Math. We have a project where we are trying to embed Excel assignments into our Math 146 Introduction to Statistics. We'll have two sections in the winter and spring of Introduction to Statistics with Excel-based assignments-- really focus on business applications, really trying to help students connect what they're doing in their stats class with their business class. That's a really big, important part of Guided Pathways in general is making sure that everyone on the pathway understands how to support students and to really frame content in ways that help students understand it.

The last thing is co-requisites for Math 107, Math 146-- Math in Society and Introduction to Statistics. We've done these co-requisite support courses with our introduction to our college algebra course-- excuse me-- and our finite math for our business students.

Math 107, Math 146 are about 40% of our enrollment. So having co-requisite courses where students can place in a little bit of a lower placement and then take these college level courses, getting them to college level in one term instead of two, is really important for us for a lot of reasons. So hopefully, addressing a lot of those equity gaps that we see.

Wow, that's a lot of great work that's happening in the classroom. And I know that the math department has received a College Spark grant in the past. So there's been a lot of effort placed towards math completion because we know how important that that is.

And I think also, we've got some different projects happening in Guided Pathways to improve culturally relevant teaching strategies, infuse notions of power, privilege, and inequity into departmental strategies and also curriculum. So can you maybe talk a little bit-- what are some of the specific things related to those areas, equity gaps, that the math has been able to see some success with?

Yeah, so one thing to remember about the math department, and large service departments in general, we are a big ship. We have lots of moving parts, a lot of people. And so there's lots of different things going on within the math department and very nuts and bolts dealing with how do we actually run our classes.

One thing we did was last summer, we actually read *Grading for Equity* by, I believe, Joe Feldman. And it was a really transformative book for a lot of our faculty, trying to think through some base assumptions we have about our math classes. One of them is this idea that if a student doesn't do an assignment, they just get a 0.

Well, that's really hard on GPAs in general. You can imagine if there's three exams. A student misses one, gets a 0, gets a 70, and then an 80. You would expect them to have a 75% demonstration of knowledge.

And yet, with that 0, it really goes down to 50%. So that's really, I think, hard on students in general. Some of our faculty are dealing or working with minimum standards for grading. We have a few faculty doing 40% instead of 0 to really address the nonlinear grading system we have.

I myself really read that book and took a lot out of it in terms of our whole point here is to measure understanding. So I really don't give students a way out of just not taking a quiz or something. I've been just tracking them down and finding them and saying, no, let's take this quiz. Let's make sure we do this so that at least I have a measure of this.

I also have been doing three-day extensions for homework assignments just for everyone, for whatever reason. Also, amnesty days near the end of the term-- two days where students can complete whatever assignments they didn't do over the term. They think it's great for building points and such. But for me, it's much more about reviewing the material they missed. So it works out, I think, for everybody.

Those are some great examples. I just see the idea that we can change some of those traditional methods of the sage on the stage and be more flexible about what we're trying to achieve in terms of learning outcomes and understanding that there are several ways to get there. So I really appreciate that approach that you're all trying to take. So if you could just wave a wand and fix one thing that you think would really impact students' ability to pass their math classes, what do you think it would be?

Give them money. Quite literally--

Incentives.

Well, I mean, to live right now and be a student is really difficult. And I really feel for students who have to work to support themselves and their families. And unfortunately, I just don't think in this country we do a good job of supporting people who dedicate themselves to bettering themselves and subsequently bettering society.

Yeah, if I had a magic wand, I would be giving every student $20,000 just to live on for the year so that they have the time and they have the energy to focus and not worry about all the other things in their lives. More often than not, when a student doesn't pass a math class, it's not because they can't. It's because they don't have the support they need to be successful.

Absolutely. And that's such critical component of Guided Pathways-- the notion that we have wraparound supports and holistic services to try to help students with some of those other superfluous, which making a living is not. But it's a reality for our students that those in more privileged situations don't have to deal with.

So I just want to thank you so much, Robert. It's been great talking to you. I'm so excited about what you're doing and appreciate you for being here today.

Well, thank you so much. I appreciate it.