Transcript

Episode 140

Pre-A&P: A Refresher for Student Success in Anatomy & Physiology

The A&P Professor Podcast

Contents

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Introduction

Kevin Patton (00:00:00):

The late tennis champion and activist Arthur Ashe once said, "One important key to success is self-confidence. An important key to self-confidence is preparation."

Aileen Park (00:00:17):

Welcome to The A&P Professor, a few minutes to focus on teaching human anatomy and physiology with a veteran educator and teaching mentor, your host, Kevin Patton.

Kevin Patton (00:00:32):

In episode 140, I describe my Pre-A&P refresher course.

Pre-A&P

Kevin Patton (00:00:49):

In this episode I want to talk with you about my Pre-A&P course, but really there are two courses I want to talk with you about. One of them is Pre-A&P, and the other one I call the A&P 1 Supplement course. And I've already mentioned these two courses briefly in past episodes, but only in bits and pieces. And even if you take all those bits and pieces and put them all together, it's not really the whole story. And I want to tell you the whole story, at least an overview of the whole story. So that's what I'm going to do in this episode and in the next episode. In this episode, I'll focus on the Pre-A&P course. In the next episode, I'll focus on the A&P 1 Supplement course.

(00:01:38):

And before I get into either one of those, I want to give a little background into why I developed these courses and offered them to our students. It all lies in the fact that I think that there are a couple of things missing in our A&P students that stand in the way of their success. And to get at what those missing things are, I threw out some questions at a workshop I did years ago when I first developed these. Let me tell you what those questions were. And this was just to get the discussion going and set the scene for these courses. So the first question to the group was, for them to discuss among themselves in small groups was, it's easy to teach my students what they need to know about A&P in one or two semesters. True or false?

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Well, there was an immediate buzz in the room because people wanted to talk about that one. A lot of people, including me, don't feel like a one semester or a two semester A&P course is really enough time. It really doesn't allow us to cover what I want to cover, and I think most of us feel that way. So whether it's actually true or false is beside the point. It feels like it's false, doesn't it? Doesn't it feel like we just never have enough time? If I just had a few more weeks, if I had three semesters instead of two, if I had two semesters instead of one, if I had four semesters instead of three, whatever it is, we want more, right? We want more time.

(00:03:17):

Another question I asked was, my students are well-prepared to take my A&P course. True or false? Well, a lot of excited discussion about that one too, because a lot of us feel that even in circumstances where there's a lot of screening of students in general maybe at our school, and maybe there's some really solid prerequisites to get into A&P, even so there are at least some students who don't seem to be very well-prepared to take that A&P course, and it stands in their way, at least a little bit of them being as successful as they'd like to be. And then the third discussion item I threw out to the group to discuss among themselves was this one, my students possess excellent learning skills. True or false? Well, you know what, there are some students that have excellent learning skills, but even those students I've found when they get to A&P, they have challenges.

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Because even if they've developed good learning skills in high school, in their first year in college, when they hit A&P, it's usually their first very rigorous course, at least rigorous in the way that A&P can be rigorous. And they get overwhelmed and they find that those learning skills, they need improvement. And then of course there's that whole batch of students that have hardly any learning skills. And so they're way far behind and they really need a lot of help. And you know what? Sadly a lot of them just give up and change majors even or do something else. They leave the course and they may or may not ever come back. And that's sad when that happens. So what can we do about these things that we all seem to run into in one way or another in our courses among at least some of our students?

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Well, that's where we come into these two things that I think are missing. First one is subject preparation. When our students come in, they really don't have some of the basic science that we'd like them to have, no matter what prerequisites we force them into, what hoops we made them jump through, when they actually walk in the door, do

they really know all that basic science? Do they have a grasp of some of the basic chemistry principles that they need to really have ready to go when they start our course? What about basic cell biology? Yeah, they recognize the name of a mitochondrion and know it's the powerhouse of the cell, but do they know what that really means? How that plays out in the story of the cell and of the whole human body? Not necessarily. Even if they did well in those earlier courses.

(00:06:12):

And what about metabolism? Do they have any real grasp of what metabolism is or why we need to understand the general principles of metabolism? And what about body organization? I know a lot of us start our course with body organization, but wouldn't it be great to have a group of students that really already knew the basics of that, had a conceptual framework on which we can build quickly and then move on? In genetics, what about some basic ideas of what a gene is and how it works and why it's important in the cell and in the body? What's going on with protein synthesis and using that information from the genes? Well, there's all these basic science ideas that we often end up having to review with students, or at least the students are going to have to review that again before they can begin to understand what we're talking about.

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And it really slows them down because they hit our course and they're already flailing around because they realize that they don't remember all this stuff, and then they have to go back and review, and then they jump back into it. And now they've been put behind a little bit. They really weren't as ready as they needed to be to start. So what can we do to fix that? So that's number one. Number two thing that may be missing in our A&P students, at least some of them, are learning skills. Things like reading comprehension. And what I mean by that is how to read a science textbook at a college level, how to read other resources that we present to our students or make available to them, and how to really comprehend what's going on there, not just skim over and say, oh, yeah, that was about something, but I don't know what, and I don't know why this is important and why they wanted us to read this.

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And what about listening and note-taking skills? Whether it's a lecture or a discussion or an active learning project. Are students really taking effective notes? Are they really listening for what's important, or are they just listening or trying to listen? What about memorization skills? And I know we don't like to talk about memorization. I don't know why that has become a bad word really. I guess if that's all we ask our students to do is memorize things, then that would be bad, I guess. But of course we don't do just that. But memorization is an important skill in an A&P course. If you can't memorize things, you're going to really, really struggle in an A&P course. So what about those skills and

what about acquiring and using a new vocabulary? It's like learning a new language, that requires some learning skills that our students may not really have built up the way they needed to.

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And what about skills needed for active studying and practice? How many of our A&P students think that study or revision for A&P means staring at their book or staring at their notes and rereading their notes and underlining their notes and highlighting their book, and oh, that's not very active at all. They need to do some active things like practice. They need to practice that information, and so they need to build up those skills. What about problem solving skills? When we ask them to solve problems on our tests or in case studies or other kinds of problems that we present them with, even just in discussions in the class, do they really know how to solve problems? Do they know how to lay out the problem to see what do they know? What is it they need to find? Do they know the steps they need to take in order to find the answer to that problem once they've framed to the problem?

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There's a lot of skills involved in problem solving, and they may not have learned all of them or at least practiced them. And what about test taking skills? Yeah, they've taken some tests and they've been successful, otherwise they wouldn't be there in college with you. But oh man, when they get to the A&P test, there's a lot there that they need to be able to demonstrate that they know sometimes at a very deep level, sometimes in involving some creative thinking. And not only that, but just when things do go wrong to analyze, well, what's going wrong and how do I get back on track? So there are some really high level test taking skills that they may not have learned yet. So two big groups of obstacles that potentially face our students, and that is, number one, subject preparation. Number two, learning skills. And number three, maturity.

(00:10:56):

Okay, we're going to focus on that first one, subject preparation in this episode. The second one, learning skills, we'll focus on that in the next episode. And the third one, maturity, well, I'm not sure what we can do with that one. So we're not going to do that. Now, before we get into the real nitty-gritty in a detailed description of my Pre-A&P course in this episode, let me just give you a really quick overview and then we'll come back to each of these points and fill in the blanks. It's a self-paced, fully online refresher course. I keep reminding my students that. What we're doing here is a refresher. This is stuff that hopefully you learned before and we're just trying to pull it back out of our brains and work with it so that we're ready to go once we start A&P.

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So it's a refresher course. Now, of course, there's always the case that some of the things that we had hoped they had learned, they just never saw that before, or it's just completely gone from their memory. So they're going to be gaps to fill in. So we're not just refreshing what we can pull back out of our memories in this course, but we're also filling in any gaps that might exist there. And we don't care how those gaps got there. We just want to make sure they're filled in. When I first start teaching this course, we called it Foundations in Science for Health Careers. Later on, we added the Pre-A&P to the title of it. So it's Pre A&P: Foundations in Science for Health Careers, but we really just call it Pre-A&P because that's shorter.

(00:12:41):

And Foundations in Science for Health careers, a lot of people just don't know what that means. I'm not sure if I know completely what that means, but Pre-A&P, we know it's well what you need to do before you start A&P, right? Just a quick little history here. Decades ago, I don't know, it was probably a little over 30 years ago, at our college, I was asked to develop a face-to-face course. We didn't have online courses back then, so they didn't ask me to develop a face-to-face course. They asked me to develop a course, and of course it was going to be face-to-face because that's what we did. And the idea of them asking came from a plan they were developing to develop what they were calling a success semester in the college where they wanted to have students who struggled take this success semester where they would learn what they need to learn in order to do well right away, do well right out of the gate.

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So that included some of the traditional developmental courses like some developmental math and developmental English, but they wanted to expand beyond that, and they wanted people in every discipline to offer some success courses, some developmental level courses, even in disciplines that traditionally don't offer developmental level courses. And because a lot of our students were taking A&P and a lot of our students were struggling in A&P, they asked us to develop this foundational course to take before they went into A&P, so that students could catch up before they go into A&P. Our department embraced that because we had already been dealing with this issue of students that had aged out of their prerequisite, remember high school biology or it's equivalent within the last five years.

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Well, what if they're in year five and a half? So they're going to probably balk at that. What? I have to start A&P next semester because I'm only a few months past that arbitrary time limit? And yeah, what's magical about five years? I don't know. And the

other thing is that, well, we had some experience with students that, well, okay, I'll take human biology, which we would consider an equivalent to high school biology, or I'll take general biology, which we consider an equivalent. So they could take that at our school. And some of those students, actually quite a few of those students were sitting in general bio thinking, I know all this stuff. And they were just flying through it and really resenting the fact that they had to stop and do this for a semester when they already knew it. All they really needed was a quick refresher. They didn't really need the full-blown course again.

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And we toyed around with trying to test out the prerequisite where we would give them a test and then they would try to pass that test. And if they passed the test, then that would count for the prerequisite and they could move on. And that just didn't work very well. And I can see why, because they didn't know how to prepare for the test, and they take the test and you're just hit with all of this stuff within an hour or two's time, you need to recall lots of details and apply those details. That just doesn't work too good. So not very many people pass the test. So that wasn't really solving the problem that these students were running into. This course, it fit the bill that it was something that students could take this very brief course. It only was equivalent of one credit hour.

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It's not really a credit toward graduation because it's developmental level or remedial level course, but they could be taking other stuff. They wouldn't have to use up part of their big chunk of their schedule for this course, and it could be refreshed. We offered it in this face-to-face course, and it worked pretty well. What I didn't like about it was that everybody was at a different place. Some people really knew their cell stuff, but needed some work on chemistry. Some of them knew the chemistry and cell stuff, but needed some work on genetics. Some of them knew the genetics part, but didn't know anything about metabolism. So they were all in different places, and yet I'm trying to teach them as all one big group, and it just evolved into a one room schoolhouse type thing where we were trying to work with different people on different things, and it's just hard to do in a college classroom, I think, especially if you have a packed room, which I often did.

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We were trying to figure out what to do. One of the other objectives in this student success program was to build confidence in the students so that they could get all those basics refreshed in these various courses they were taking during their success semester. And then they would walk into the full-blown college courses with a lot more confidence. And we know that that confidence a lot of times is really a big part of how successful they're going to be. So that's how it started, and it worked okay. But I eventually stopped teaching that class, and part of it was it wasn't doing exactly what I

thought it should be doing, and I really didn't take the time to figure out how we could fix it. I didn't exactly walk away from it completely. It still stayed there in the back of my mind, but I had a lot of other projects I had to tend to, so I stopped teaching it.

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And when I stopped teaching it, nobody else wanted to do it. Nobody else was interested in it, so it just died. Okay, so that's the background of it. Then a few years later, after thinking about it a lot, and after online courses started to become a thing, it was still the early days of online courses, but that gave me some ideas about how can we do this one room schoolhouse type thing where different people would be at different places and have different gaps in their knowledge and need to work on different things in order to be 100% refreshed on these basic ideas. And so I resurrected it again, but this time as a completely online course. So that was just about two decades ago that I revived it and retooled it and renamed it by adding that Pre-A&P to the name of the course.

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And it was once again, a developmental or remedial level course, so it's not for graduation credit, but it was the equivalent of a one-hour course. It's a pass-fail course. Now at that time that I reintroduced it, and also that previous version of it, a C or better, which was 70% or better, was a passing grade. Well, in this one I redid the grading. So it's what you might want to call an alternative grading thing, and I'll get into the details of that a little bit later. But their tests are scored and they needed to achieve at least an 85% success rate on any one test. So that's the equivalent of a B or better, in order to pass that test and pass the course. So when we say pass-fail, a lot of us think in the back of our heads, immediately go to, oh, you either get a failing grade or you get an A, B, C, or D, and that's just lumped into passing.

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Well, that's not the case here. In the case of this course B are better is passing, anything lower than a B is not passing. Now, that's as a general principle. As I say, it's an alternative grading scenario, and you'll get that as we go through this. We also offered it only in the short terms, we often call them mini masters. And so instead of our usual 15 or 16 week semester or trimester, we would pack in these various half semester sessions and pre-semester sessions and summer sessions, long and short summer sessions. So they ranged, sometimes they were offered in a one-week session, sometimes a two-week session, sometimes a four-week session, sometimes a five-week session, sometimes an eight-week session. But they were all short. They were all shorter than the 15 or 16 week traditional semester or trimester that we normally think of.

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And this did count as the A&P prerequisite. For those who had expired prerequisites they could take this course and if they pass it, now on their transcript that would get them into A&P one, that would meet the requirements for that prerequisite. The students were advised by our advisors that they should not take the course if they don't have any science background. They need a science course if they want to do that, they need to take human bio or general bio or some equivalent of those courses. But if they had that and they either just wanted to refresh it, maybe they had it the semester before and they just wanted to boost their confidence and refresh it again, or maybe it had been a little more than five years, but they felt like they could get it back pretty quick, well then those are the folks that were consulted to take this course.

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Okay, so in the next segment, we're going to jump into the course design.

Course Design

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Now, my Pre-A&P course has 10 modules in it, and each of those modules focuses on one category of concepts that I think students need to have a good handle on, need to have good familiarity with, and even competence in, in order to hit their A&P course with a good chance of success. So what are those concepts? Let me list them for you so that they're been in the back of your mind as we go through the rest of the discussion in this episode. So there were 10 of them, 10 modules. First one covered science basics. So this is scientific measurement, graphs and charts and illustrations and how to use them, science terminology, things like that. So very basic things in science.

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Number two was introductory chemistry. So some of the basic chemical principles such as atoms and molecules and ions and ionic bonding and covalent bonding and polar and non-polar and some acids and bases. Those are very basic chemistry principles. And then the third module covered biological chemistry. So these are the macromolecules, what the categories are, what the components of each of those are, what the functions of them are. Then we get to the fourth one that's introduction to cells, so very basic cell structure and function. And then we get to number five, and that's cell transport, so things like diffusion and osmosis and bulk transport such as exocytosis and pinocytosis and phagocytosis, and so on. And we get to the 6th one, and that's getting energy.

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So this is where we start to dive into metabolism, at least just in a general sense, what is anabolism? What is catabolism? Why do we need to know about the catabolic pathways? Why is that important to our understanding of the human body and how it functions? So that's getting energy. And then we move into the anabolic part in the 7th module, which is called making proteins. I could have called that protein synthesis, but that sounds scary. So making proteins, that's all it is. So how do we make proteins? How do we take that genetic information and start building our amino acids up into peptides and polypeptides and inform our final version of our protein and what's going on with those proteins?

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And then we get to module eight, which is introductory genetics. So just some very basic genetic principles. And then number nine is tissues. So this is an introduction to tissue, not all of the detail that we often cover in an A&P course, but just some general categories of tissues, so that they have an idea of what an epithelial tissue is, what a connective tissue is, and a few examples of each one of those, but not like I say all the detail we get to in A&P course, but just a foundational level. And then the 10th and final module is the human body.

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So this is where we introduce students to the idea of directional terms and a few of the directional terms, the different regions of the body, and some of those basic principles, so that when the students get an A&P, it's not just this big dump truck full of stuff that's unloaded on top of their head the first week, and they're expected to know all of it and be comfortable with it and be able to use it and apply it. So this is their first go at it. So those are our 10 modules. Gives you an idea of the kinds of topics that we cover in Pre-A&P. And if you want to look at more detail, you can skim the learning outcomes of the course using the link that I'm providing you in the episode notes for this episode.

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So in these 10 modules, what do the students do? Well, the main thing they do is the module test, because remember, this is a testing out experience to take the place of an actual testing out experience that we tried and it didn't work too good. That's why the test has become the central part of each of the modules. And give me some time here and I'll fill that in for you. What I mean by test how the tests work and what else they do or can do besides the tests, not instead of the test, but besides the test that is alongside the test. A couple of basic things. All the module tests are cumulative tests. So when they take test one, it covers the concepts of module one, which is basic sciences. Then when they get to test two on introductory chemistry, they're going to get a lot of

items about introductory chemistry, but they're also going to get a few items about the basic science, because it's cumulative.

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And then when they get to test three, they're going to have a few questions, and they're from both tests one and two. And then in module four, they're going to get some questions in there from test one, two, and three. So it accumulates as they keep going. And then finally when they're done with module 10 tests, they're ready for the final exam, because they've been practicing on the other concepts by the time they get there. And so they do have a cumulative final exam, and as I say, they're usually very ready for it, and they go into it and they take that and if they pass the final exam with a B or better, then they pass the course. So they have to pass each test in sequence with 85% or better, and they have to do it in sequence and they have to pass each one, because when they get 85% that unlocks the next module.

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They can't take test two until they pass test one, and they can't take test three until they pass test one and then test two. They can't just skip one, say, well, I'll just take an F on that and hope it averages out. Okay, nope, because the test points are not averaged and they're not totaled. If you get to the final exam and pass it, you pass the course. If you don't get there or if you get there and you don't pass the final exam, you don't pass the course. And that's different and weird. Right? Each of the tests is composed of randomized questions, these are all objective questions and they're in groups. For item one there might be a group of five or 10 or 15 or 20 different questions, and the learning management system will randomize that. And so on the attempt that you're taking at the moment, it'll choose one of those 20 items.

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And then the next time you take that test, if you take it again, on that second attempt, it'll again randomly pick one. There's a one in 20 chance that it'll be the same question, but odds are it's going to be a different question on that same subtopic, that same small group of concepts. And that's just like how we build tests. We don't test on every little thing, we randomly select from this concept and that concept and so on. So yeah, it's just like a regular test, except it's different every time. Because of that randomization, if you do the math on it, you see the odds of them getting two of the same tests is practically impossible. You're going to win Powerball before you get another version of the test that's identical to a previous version that you've taken. So each of those attempts is a different test.

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I'm going to come back to the tests and how they work and how really weird they are, in a moment. But let's stop and fill out the idea of what a learning module is first. So yeah, the test is part of the learning module, and if you pass the test for that learning module, you've passed the module and that's what you need to do to unlock the next module. So we know that. So what I tell students to do is to start the module by taking the test first. Now, if they want to do some reviewing ahead of time or reading or something like that, they can do that. I don't stop them from doing that. I just say a good strategy is to take the test first. Besides the idea that pre-tests are a good idea in a regular course anyway, that is taking a test on the topic before you start studying the topic. And that's been shown, and I've talked about that in previous episodes, that has been shown to be of an effective learning technique.

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There's that, but setting that aside, this is a refresher course. So maybe a particular module, the topics of a particular module, maybe it's already strong in this one, maybe this student really doesn't need to go back and review because they know about this topic. They know these concepts pretty well already. You tell a student, how can you determine whether this is strong in you or not right away? Well, you can do it right away by taking the test. If you pass the test, those concepts are strong in you. Yay. And now you can move forward in your quest. No sense slaying a monster that's already dead, right? So good test at the beginning to see is there a gap there or not? Do we need refreshing for this set of concepts? No, we don't. Well, we can move on to the next one because we passed this test and that has unlocked the next module.

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But if a student doesn't pass, well, they can't get to the next module. They have no choice but to stay there. And now we've identified some weaknesses. Now we know here's a spot where we need to work on it. I provide them some resources and they can use any resources they want, but I provide them with a few to at least get them started, and usually it's enough for them. So one thing I provide is a review outline that just goes through the main ideas, the main concepts that are in that module and what those concepts are about. And that includes some illustrations too, sometimes even little animations or a link to a video or something like that. But it's basically just an outline. So they can use that and review things, and if they feel like, well, yeah, this reminded me of some stuff, I think I got it now. They can take another attempt.

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And if they don't pass, hey, no harm, no foul, they can continue to take attempts. They have unlimited attempts. All they need to do is get to 85% or better. And once they hit

that, that unlocks the next one. That's all they need to be able to do. Maybe they'll go back a few times and review the outline and take a few attempts. Another thing that I provide them are audio summaries. Now, not all the details are in the audio summaries, but it gives them a little story about that topic for that module or that set of topics for that module. And sometimes that jars some memories, loosen and that gets them along. But I have links to other more detailed resources. If they want to read a textbook, well, I have an A&P textbook on reserve in the library, or they can just go online and I give them links to some open biology and A&P textbooks, and they can go in there and review those topics in some detail.

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I also link to the Kahn Academy biology units, and they can go in and watch some of those videos and get caught up on those areas where I don't remember about osmosis, I need to look at some osmosis videos and have somebody explain to me what osmosis is. So they can do that. Wendy Riggs has a great collection of instructional videos in biology and A&P. And so I have a link to her YouTube site where she has those videos. There's many other resources I could offer, but I found that if I offered too many, then they just glance at that long list and say, I don't even know where to start there, so I'm not going to do anything. So I just give them a small handful. And they're really good resources, so they usually don't have to go beyond that. So they can use any of those resources.

(00:35:20):

And some students, they really feel like they're not studying and unless they read the book, so yeah, okay, you want to read a book, there's a book you can read and that'll hopefully help refresh you. And that's what we're doing here, right? It's a refresher course. And so hopefully that'll get you over that hump and you get your 85% and I can move to the next module. They take the test again and again, each time I encourage them to review it, I actually give them some specific instructions on how to analyze that test attempt that they just took and figure out what went wrong. I give them steps to go through to do that. So they're learning a good skill there if they don't already know how to do that, and figure out what went wrong, figure out how to get to where they need to be, and then they can take another attempt. If they mess that one up, well, let's analyze that one and see what went wrong and where my weak spots are again.

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And so they can do that again and again and again and again until that test gets passed and that next module is unlocked. Now, sometimes that can be daunting if they're really struggling with a particular set of topics. It usually isn't daunting, but it can be. And having taught this for almost 20 years, I can tell you, most students find that the first couple of tests are easy. The first couple of modules, they can get through them pretty quickly, and so they think, oh, they're all going to go this quickly, but no, no, things get

harder as things move along. That's how life works too. And so when they get to the third and fourth test, they get a little discouraged sometimes because now they have a few more attempts before they get going, and this is the point at which some of them are going to contact me directly and privately and say, Kevin, I don't understand what's going wrong. I did so well on the first two, but this third one is hard.

(00:37:19):

Or the first three were okay. Third one I struggled with a little bit, but man, test four, it's just, I don't think I'll ever pass it. I've taken too many attempts. And I say, well, how many is too many? You can take as many as you like, so just keep on taking that test. And so here's where I'm really, besides setting up the whole thing, here's another place where I'm really necessary, makes me feel good that I'm needed, because I need to get in there and really encourage that student and really let them know that it's okay. This does not mean you're failing. This means you're learning. You can't learn without effort. So we've identified an area where you need to do some learning or relearning, and to do that relearning, you need to put in more effort on this set of topics, and it'll probably get better in later modules where you're going to run into some more things that you remember.

(00:38:16):

But for now, yep, we have a challenge. So I'll be here right with you. If there's anything you can't figure out, I'll help you figure it out. I'm not going to just give them answers, but I'm going to help them figure it out. And that's what I do as an instructor, right? That's what faculty members do. That's why I enjoy teaching. Once I get past test four, usually I don't get a lot of that kind of feedback anymore. Maybe a little bit, but not too much. Now after test four, the rest of them aren't easy. But I think by then the students have figured out that they can rise to challenges, that they can push through and get this done. And boy, that's a big thing in my book. If they've learned nothing else, they've learned no concepts at all, but learned that lesson, to me it's totally worth it. They have this pathway that they go through.

(00:39:09):

In the syllabus I walk them through it. I walk them through how it works, that you take a test, if you don't pass it, you circle back and fill in the blanks, and then you take another attempt, and if you don't pass it, you circle back and keep going, and then you can move forward if you pass the test. So I label that the success pathway. So I'm always referring to the success pathway, and I even have a diagram, a little flow chart that walks them through that. Here's what you do for module one. You do the same thing for module two, same thing for module three, and finally you get to the end. Okay. In the next segment, I'm going to talk a little bit more about these darn tests, these weird tests.

More About Module Tests

Kevin Patton (00:39:51):

As I said in the previous segment, this course is really focused on those tests. So are these formative tests? That is test whose main goal is to teach a student like quizzes in a traditional classically designed course, quizzes act as formative tests where they really get the students thinking and they show students where their weak spots are. And then it's a chapter test or module test or midterm exam or something, where it's the summative test, where the students have done all their learning by using the formative tests and other learning techniques, and now they're ready for the summative test where they're being assessed and given a final grade or score. So the question is, in this Pre-A&P course, are these formative tests? Are they summative tests? And the answer is yes. It depends on where the students are in their learning.

(00:40:53):

So when they take a test attempt and they pass it, well, that's a summative test. It showed that, yep, I have the competence to handle a test on this set of topics. But if they take the test and they don't pass, well, then it becomes formative. It's a formative test, and we don't stick with that grade. So we didn't assess them and say, well, here's your performance. Like it or not, that's the end of the story, you have no recourse from now on unless you take the course over again. We don't do that. We say, okay, you got some weak spots here, let's work on them. And then they try it again, and it might be another formative experience. And they try it again, it might be another formative experience. And then they try it again and whoa, they passed it. And so now, yep, we can say that you're good enough now. We can say that you are competent in this set of concepts. You did B or better.

(00:41:51):

And so we're saying that that's a level of competence that's going to provide you some success later on. So the answer to that question, are they formative or summative is, well, they're formative until they become summative. Another aspect of these tests is that I look at them as a form of retrieval practice. Now, the very first episode years ago in this podcast was about retrieval practice and I've brought it up a number of times since then. And retrieval practice is a widely studied and very well-documented and proven way to learn things, to get things into your long-term memory, and not only get them into your memory, but be able to get them out when you need them and get them out and apply them the way you need to apply them. So it's really a very rich activity where you're retrieving not just information, but retrieving the ability to apply and use and be creative and solve problems with those memories.

(00:42:54):

And here's where we get a little controversial. I call them retrieval practice, but there are some cognitive scientists who are horrified by that, which is a good reason for me to continue to call on that. Because it's just, to me I think it's hilarious that they get so upset about this. Holy smoke, I didn't insult your mother or something, I just said that these tests are a kind of retrieval practice. No, tests are not retrieval practice and don't say they are, because that will scare students. Well, really, is that a good reason to not call them retrieval practice if that's really what they're doing? If they're formative tests until they become summative, well, okay, the summative test isn't retrieval practice. The practice is over and you made it.

(00:43:42):

But the formative attempts that you're taking, those are retrieval practice. And yeah, I'm calling them a test. I don't think that scares students. I think that they actually feel better about the fact that they can keep retaking tests. To them that's a win. Like, whoa, it is a great class, if I fail a test, so what? I can take it over again. Now, of course, they soon realize that they don't want to keep failing because they want to get done with the course eventually, right? It's retrieval practice, and if you want to come and fight me, go ahead. The other thing about these tests is, I just want to reemphasize that they're very randomized. And as time went on the first few years, especially less so in later years, but still continually, I go back and I throw some test items out, because I've found based on student questions and just how many students pass that item and so on, that some of them are confusing.

(00:44:45):

So I either throw them away or rewrite them, and then I add a few more to the list. So maybe the first time through there were five items in that question set, and then next time I add a couple more, now I have seven, and then I add a couple more, and now I have nine. And before you know it I have 25 of them. The more test items I write, the faster I can write and the better the items are, the more clear they are, the better they are at really honing in on what it is I want to be testing or evaluating in the students. It sounds really hard, and I'll admit it's a lot of work at the beginning, but it gets faster, it gets better, and then you keep adding to it. And the bigger those question sets get, the less likely it is that students are going to get the same items again and again.

(00:45:39):

You don't really need very many in a question set, but I don't know, I just am that way. If I can add a few more here and there and feel better about it, I'm going to do it even though it's not really necessary, I'm going to go ahead and do it. So yeah, it's highly randomized and I think that's an important aspect of this. Otherwise, students are going

to try and cheat the system. They're going to try and game the system and try to collect those test answers and share them with one another and create a database. But it's really almost impossible to build that. It's just a waste of time and effort. It's the time and effort is much better spent studying and working on the test and doing more attempts at the test than trying to do that sort of thing. And in the 20 years I've been teaching this course, that hasn't happened. So yeah, I guess it works.

(00:46:33):

Keeping students honest and preserving their integrity whether they want to or not, and they want to in this course, they realize it's about them when it's a personalized course like this. Another thing about the way the tests work is because they're automatically scored by the learning management system, they get immediate scoring and feedback on how they did. And by feedback, what I mean is they are marked correct or incorrect, so they know which ones they got wrong and they can go back and investigate. Learning management systems do allow you to put additional feedback in there where you get it wrong and it might say, well go check page such and such in your textbook, or this is wrong because, and then they explained something.

(00:47:20):

But when I first started putting this course together, I just didn't have time to do that. I just wanted to get it up there and going and see how this experiment was going to work. And luckily it did work, and I thought to myself, well, maybe someday I'll go back and add the feedback, but I found, no, I'm just going to add more questions, because it's working the way it is without any additional feedback. But you might want to consider adding some other kinds of feedback if you have the time and you feel like that's necessary. But I haven't found it to be something that I think would be helpful. Another thing about these tests is they are totally untimed. Now that first started back in another course that I was also putting my regular A&P course where I was putting online tests in and our server just couldn't handle all the students hitting the server around the same time, because I'd say it's got to be done on such and such a date between such and such times, and you only have an hour or 50 minutes or whatever it was.

(00:48:19):

And back then, the college, most colleges hadn't really planned well for how much their server was going to be used and how much bandwidth they were going to need and so on. In here I was with a particularly large class and a bunch of those classes. I had a huge number of students with a bunch of online tests with a bunch of items on it, with all this randomization going on, and it just started crashing all over the place. And the students they couldn't finish their test in the allotted time. Man, I had a big mess. And so I was working with our LMS manager, who's still there and is a great guy. And boy, he really knows his education and teaching principles besides knowing how to work in

LMS and solve problems there. And I've relied on him a lot throughout the years. Thanks Dave.

(00:49:10):

And he said, why are you timing them? What good is that doing you or your students? You don't need to time them. Just tell them it's got to be done this week and it doesn't even have to be done within an hour. Let them stop and start because I was already letting them use open resources. So that's another thing about the test I want to mention. They're open resource tests. That is open book tests, but not just book, you can use a book, you can use videos, you can do a search on Google if you want. You can even ask these days artificial intelligence I guess, to answer it. Now, good luck to you, because I don't know, my experience with ChatGPT and some of those things so far is not too reliable. And even if you do get an answer, it's still up to the student to decide is that really the correct answer, or is ChatGPT hallucinating again or outright lying to me? Because that happens, happens to me a lot at least.

(00:50:11):

So when I do things, I guess I haven't tried answering test questions that way. Maybe I should start doing that. But anyway, the point is, is that it's already open resource. And so what really is the timing going to do? So I had a recent episode, hopefully you listened to my discussion about that. I think it really is not useful at all. It doesn't accomplish anything to time our test. But what it does do for a lot of students is it makes it inequitable for them, because maybe English isn't their first language, and do we want to punish them because they're a little bit slow because of the language thing going on? What if they have some other kind of issue, like they're not neurotypical? What if they have dyslexia? What if they have some so-called learning disability? What if they have reading issues? What if somebody in their household is always screaming in the background? Or what if the baby keeps waking up or what?

(00:51:15):

Man, there's just all kinds of stuff going on and there's no reason why it needs to be timed. And I'll tell you, for my accommodations that I'm asked to give students that have documented disability with our disability office, almost always what they hand me is a form that says that they need extended time on the test. Well, you know what? If it's good for them, it's probably good for a lot more students that don't have documented issues. They have undocumented issues, but they're still issues. So why not just remove the timing completely so everybody's in the same boat? If you don't need that much time, then you don't take that much time. If you need a lot more time, then you got it. So they're all untimed. And that solved the server problem from the olden days when we didn't have enough server capacity and server processing ability.

(00:52:10):

But it also had this unexpected silver lining to it. And so I embrace it. Now, I don't like timed tests anymore. I just think, how could I have ever done that before as an instructor? So yay for untimed tests. All right, so that's a little bit more detail about how those tests work. And there's some other things I want to talk about in the next segment.

Other Course Features

Kevin Patton (00:52:38):

I want to talk a little bit about some other course features to fill in the blank to give you that whole picture, that whole story that I told you I wanted to give you. One of the things I've found to be very useful in this course is I do a video orientation. Maybe you already do that in your A&P course, but I first started doing that in my Pre-A&P course and it really had some unexpected benefits to it.

(00:53:03):

So the video orientation is just me saying, hey, I'm Kevin. I'm here to help you, and this is a really weird course. Just be prepared for lots of weirdness. It's not the classically designed course that you're used to, but that's okay, I'll help you through it. If you get lost, just yell out and I'll be there to help you. I'll be right next to you. By doing a video orientation, they get that persona that I've talked about in other episodes. They get the fact that I'm projecting helpfulness and support and enthusiasm for the topic, enthusiasm for the course and an admission that it's weird. And yeah, you're going to need some help because this is weird. And so you know what? I'll help you. It's almost as if I'm there and students have given me that feedback that they really appreciated the fact that it seemed very personal to them. They felt like they were meeting their instructor personally and getting some information and getting some support from them before they even did anything.

(00:54:10):

And then I also provide an audio version so they can listen to it in the car instead of watching it on the video or listen to it while they're doing chores or something like that. And sometimes that's even more personal when you have that voice in your ear, literally in your ear because you have headphones or earbuds or whatever. And so there's an audio option, and then there's also a written option for people that need that or want that, there's a transcript available. So it's three different versions. So that's going to

help with the universal design aspect of it and the accessibility aspect. But I think it tells students that I'm providing them lots of ways to succeed, and it starts right now.

(00:54:53):

Another thing I do that I've mentioned I think in the way past on this episode, and that is I have something called a student understanding. So these are, I don't know, there's like nine or 10 key things that I really want students to understand about the course, that you are expected to be honest and not have somebody else do your work for you. That would be one point. Now that's in my syllabus, it's in actually several places, and I'm going to circle back to that in just a second. And then I'll have some other policy or practice in our course that it's really important that the student understand from the get go that that's the way we're doing things. So as I say, I have nine or 10 of those things. So I have them listed out as what I call the student understanding, and they can read through that.

(00:55:46):

But then in the learning management system, I take each one of those and set them up as a quiz item, where it'll have a statement, I must be totally honest in my dealings in this course. I must demonstrate academic integrity in this course, however that's worded. And then the test part of the item, it'll be they can either choose, I understand, or I do not understand. And the correct answer is, I understand. And they're told if they don't understand an item, then come and talk to me and I'll explain it to them, and we'll make sure that you do understand and you can take it over again. So if you really don't understand, don't check that box. So they go through it, and if they've checked, I understand, I understand. I understand for each one of those main items drawn from the syllabus, then they get 100%.

(00:56:37):

And as soon as they get nine out of nine, that unlocks the first module. So they can't even do the first test until they've done the student understanding. And by the way, for the sake of student attendance, because we know we got to watch that because paperwork, right? Record keeping, right? Because of that, I tell them, the student understanding does not count as taking a test. That's not really a test. It's in the form of a test, but it's not really a content test. So if you take the student understanding and that's it, and you wait a while before you take your first attempt, the first module test, I will mark you as being absent, because you're not participating. So that has to be made clear.

(00:57:21):

And then getting back to this academic integrity part of it, I do give them a lot of information on academic integrity, a lot of information on it. Because I found that a lot of students that want to be honest and they want to do the right thing, they don't always understand what is allowed and what is not. They don't always understand what's a violation of academic integrity. I do that, and especially because this is yes, a weird, weird, weird course. And so they're not always clear on, well, what help can I get? Can I ask my brother who's a physician? Sure, you can ask, but you can't have your brother take your test for you. You can ask your brother some questions and then you decide, what is the answer to this question? Am I going to take his word for it? Does he even understand what this question is the way I do?

(00:58:17):

And so, yeah, you can do some collaboration if you want. You can look things up if you want. So because it's weird in that way, students do have a lot of questions like, well, what is acceptable, not acceptable? So if I give them good information, say, yeah, you can do this, can't do this, but you can do that and give them some solid examples, that really helps a lot. It makes them feel more confident that they're doing the right thing. Because I think especially with that video orientation where I set things up that way, I think they really want to do right? I think they really do see that this is a course that's going to benefit them and it's going to make them more likely to succeed in A&P. So they're not really looking for ways around it. They're looking for ways to really make it work for them.

(00:59:03):

Another thing I do in this course that may seem weird to you and often seems weird to students, but becoming less so as time goes by, and that is using badges, digital credentials, and I've talked about those in previous episodes too. I'll have a link to those in the episode notes if you want to go back and review that. But every module that they pass, they get a badge. And we use Canvas at our school right now, and there's a way to integrate badges into Canvas. Actually we use Canvas badges, used to be badge or badges. Other learning management systems also usually allow integration of badges. So this is not unique to Canvas. And so when they do module one, they get a B or better, then they're going to get a badge for basic science. And then when they pass module two, then they get a badge for intro chemistry and so on. So they get a badge for each one of those.

(01:00:01):

So that's a little bit of motivation for them to build up the badges, and they can take those badges in their badge backpack, and they can display that and display it on

LinkedIn if they want, or they can display it in their backpack, they can display it in various places to show their other teachers or other students or whatever, that yep, I've had training in biological chemistry. I've had training in making proteins. Actually the badge is called protein synthesis, even though the module is called making proteins. And so they get a badge for every module that they pass, and then they get a badge for the whole course when they pass the final exam. Another thing in this course is something I added late in the game, it's only been in there a few years now, but it's worked better than I thought it would.

(01:00:53):

At our school we are involved in quality matters, where there's this rubric that they want you to follow in designing your online course, and you check this box and check that box. Yes, I have this, I have my syllabus available. Yes, I have this. Yes, I have this. And I have a love hate relationship with quality matters. I really have problems with the checklist thing and you must have this in every course because I think that especially in courses like this that are weird and experimental, sometimes you want to go off and do something different. And if there's a requirement that you have to follow the rubric and no ifs, ands or buts, no exceptions. Well, I get the idea that that keeps out the riffraff, right? Somebody that wants to put up a course and not put any effort into it, and it's not a good course. But sometimes you can make a good course that's very minimalistic, I think, and I just don't think some of these programs allow for that.

(01:01:50):

So okay, that's my little rant about quality matters. But even so, even though there's some downsides to it, there are some upsides. And one of the things I didn't have in my course that is in the rubric, and I didn't think I needed it in the course, and I don't think I absolutely needed, but I put it in the course and that is a discussion. How am I going to do a discussion when it's self-paced and everybody's at a different place and everybody has different weak spots they're working on? Oh man, this is just, I don't know how a discussion's going to work. So what I ended up doing is I put a discussion form in there, and when they get past test four, or maybe it's test five, then I, instead of automatically proceeding to the next module, they're dumped into this discussion where I say, okay, in order to get to the next module, you have to post something in this discussion thread.

(01:02:47):

So what got you here was passing the previous module. What gets you to the next module is posting something. What do I want you to post? I want you to post why you're here. Why are you taking A&P? What's your goals? And also think about posting a word of encouragement for people coming into this discussion after you do, because you're all going to be coming in here at a different time. So why don't you post

something in there like, hey, I made it this far, you made it this far, I think we can do this. That sort of a message and put it in there and try to encourage one another. And you know what? They do that, they share they about themselves and why they're there. They encourage one another, and I think it's a good thing to just stop in the middle of this quest that they have to get all the way through.

(01:03:41):

I'm taking this module, I pass it. I'm taking this module, one attempt, two attempt, three attempt. Okay, now I'm in the next module, one attempt, two attempt. Okay, next module. And they're really working through this, and some of them are trying to work fast too. Now they have to stop. They have to take a brain break and think about something different and think about it in a different way and write out their thoughts. And we know there's research that shows, and I've talked about this in previous episodes, that when you do a midterm debriefing and think about why am I here and how's it going for me and stuff? That that really does help solidify learning in a real concrete way, much more so than I ever thought it could.

(01:04:26):

Here's a way to do that, is to put in a midterm discussion, and in this case, that midterm discussion might come early, might come late in that little minimester. It depends on how quickly that student is progressing through that success pathway. Getting from module to module to module. Another thing I do is I have intentionally scheduled, intentionally supportive announcements built into the course. So when the course starts, I already have them scheduled at key times throughout the semester reminding them when the final exam is going to open. The final exam opens halfway through the mini master. It's not open at the beginning. And that was a compromise negotiated with the financial aid people, because they didn't want to be given financial aid for somebody who finished the course the first day.

(01:05:20):

Now, nobody's going to finish it the first day. That just doesn't happen. But theoretically I guess it could. And so the discussion went back and forth about, yeah, this is a good idea, Kevin, but this isn't going to fit our model of how we determine whether someone qualifies for financial aid or not. So we want them to be in there at least for 50% of the mini master. So the way to do that is to not open the final exam until the halfway point. Now, even if they finish all the modules before that, they have to sit and wait before they can take the final exam. So they do that. And then so I'll give an announcement that says, hey, exam open today. That means we're at the halfway point, and hopefully you're doing well, and if you're not close to halfway, you better get rolling here because you don't have a whole lot of time left.

(01:06:11):

And so I'll have various announcements like, hey, don't forget our college learning center if you need help. Hey, don't forget I'm here if you need help, here's how you can reach me. Hey, remember this date is coming up. Remember here's the deadline for the course. You have to have your final exam finished and passed by such and such a date and time. Don't forget your badges. Hey, you're earning badges. Why don't you take a look at the leaderboard and see where you stack up compared to the other students. I have all of these things in there. And what that means is I'm touching base with them automatically, but still touching base with them throughout the minimester. And if you have any experience in teaching online courses, especially online courses that have a real loosey-goosey schedule, and I have no schedule pretty much in my course. So that's a big problem in my course, is they lose track of the course and get behind.

(01:07:05):

And the behinder you get, the harder it is to catch up, right? So by doing this I'm constantly nudging them and saying, hey, I'm here. I'm here to help. Still here. Hey, are you still working on that course? You ought to be working on that course. Hey, why don't you work on that course? And so that keeps them going. I have far less problem once I started doing that, far less problem with students getting behind and not catching up. And that is a big danger in online courses in general, and it's an even bigger danger. It's a huge danger when you have a self-paced course. Another question you might have for me, because I do get this question sometimes, is like, well, what do you do, if they're doing all this work and they're all at different paces, you just sit back and let the course run itself?

(01:07:52):

Well, I guess in a way I do, but I do have a role, and I actually specify that in several different places in the syllabus and other places in the course. But let me read you just one short passage where I actually have a little section called faculty role, and then I come back to it from different angles in different places in the course. But under the heading of faculty role, I say, because this course is self-paced and self-directed, it is also a student-centered course. Your instructor provides an evidence-based, carefully constructed success pathway of review resources, informative, in parentheses, learn by retrieval, in parentheses, tests and an exam. The instructor also provides study tips and coaching advice through various course links, regular course announcements with advice to help keep you on pace for success, and is available for individual help as needed throughout the week.

(01:08:58):

There are no class meetings or lecture sessions. You will always find the instructor in one of three places, number one, out in front of you, cheering you on. Number two, just behind you, to have your back. And number three, alongside you, so you know you're not going it alone. So I remind the students that I'm there to be their coach. I'm there to be their support mechanism. Now, I did a lot of work before the course started to set it up and get it all arranged and so on, but I'm going to be checking in with you and you can be checking in with me and you can get help from me anytime. So those are some of the other features of our course design.

Wrapping Up

Kevin Patton (01:09:51):

Another question you might have is, does it work? Does this Pre-A&P course really do what I want it to do and give students that confidence they want and need to do well in A&P? Does it really fill in the blanks? Does it really refresh that basic science, those foundations in science that they really ought to have ready to go when they start the A&P course? Well, the answer in short is yeah. Now remember, there is a mixed bag of students. There are some students who really struggle, and that's why they wanted to take this course. Some students did it because, well, they think they're ready to go, but they don't meet the requirements exactly because they timed out of the prerequisites. So they're doing it to test out of the course. And there are some students that are really good students who probably going to do very well, but they've heard that A&P is rigorous, so they want to do everything they can to be ready for it.

(01:10:47):

So there's just all kinds of students with different kinds of backgrounds and different kinds of challenges and different places that they are in their learning path. So it's hard to measure really. But when I do student surveys, and yeah, we do have student teaching evaluations and yeah, I don't put a lot of stock in those, but they all come back where either 100% or close to 100% would recommend this course to other students. So that says a lot. Because it is an optional course. We did a study, when I say we, I mean somebody else in our institutional research department. A few years after we started, I wanted to know, is this really working or not? And the guy who was working in that office at the time said, oh, I love doing this sort of thing. Let me work on it.

(01:11:38):

And so what he did was he did some searching and found my students that had taken the Pre-A&P, and he followed up with them in their A&P one course to see what their

letter grade was. Did they get an A, B or C or whatever? And he found that students got approximately 0.4 something, approximately half of a letter grade better if they had the Pre-A&P course. And it didn't matter what their prerequisites were, it didn't matter when they took their prerequisites, whether it was recently or a long time ago, it didn't matter, if they had the Pre-A&P, they were likely to do better in their A&P one course. So yeah, that sounds good to me. Another thing that I want to point out, I have a few little notes that I want to make clear, ups and downs in presenting this course and offering this course.

(01:12:32):

Developmental courses, they have some issues. There's no credit toward graduation, so sometimes it's a hill to climb with some students. Why would I want to take a course that doesn't count for anything? Well, it's not that it doesn't come for anything. It just doesn't come for a degree. Is that really why you take courses? Well, yeah, sometimes it's why they take courses. It's not because they want to learn anything really. But if you can get past that and say, look, if you really want to be prepared for A&P, if you want to earn those credits toward graduation the first time rather than the third time taking A&P, then maybe you want to invest in this course that's not for any graduation credit. It also sometimes can cause some financial aid issues, not so much these days, because I think they have most of that worked out.

(01:13:21):

But if all you're taking are non-credit courses and you're getting financial aid, that sometimes can be problematic. There are a lot of educators and education commentators and pundits that don't like developmental courses because their problem with it is their issue is why can't you just take college courses? What is wrong with our educational system that you can't graduate from high school or get a GED and then just start taking college courses? Why is there this in-between stage where you have to take developmental math and developmental English, and in this case, developmental biology in order to do well in your college courses? Well, that is a good question, but I don't think the answer is get rid of developmental courses. Just skip it and hope for the best.

(01:14:11):

Because what's going to happen is you're going to get students getting into those more rigorous college courses, not all college courses, but the more rigorous ones like A&P, and they're going to run into problems and they're going to have to drop out and take it again and drop out and take it again, and they may never pass it. And now they have all that time and money and effort wasted. And not only that, they might just give up on higher education. And maybe higher education really wasn't their cup of tea, but that's no way to find out, is that way. So to have helpful courses that bridge the gap, I think it's a good thing, even if some people don't like it, and I can understand why they don't

like it, but the way to solve it is to not fight against developmental courses. It's to fix the problem in the first place and make sure that learning and that refreshing is happening in some other way.

(01:15:06):

And remember, this is a refresher course, it's not really a developmental course in the same way that developmental math or English is either. Another issue with a course like Pre-A&P is it's not always easy to get buy-in from everybody that needs to buy-in order for you to be able to teach your course. You can't, in any institution you can't just decide, I'm going to teach this course and it's going to have this kind of credit and it's going to do this and that. It's going to count for this or not count for that. No, you're in a system, you got to get the whole system and all these different people to buy in. The hurdle you have to jump over is it's different. It's weird. It's different. And so you got to educate people about what your goals are and why you're using the techniques that you're using in this course, what problem it's solving and all that.

(01:15:56):

The first hurdle is with your colleagues in your department, and so you have to educate them and get them on board. And you know what? It's hard to explain what this is and why you're doing it and why you might be using some of the same techniques that I just spelled out here, because they're weird, they're different, they're experimental in some ways. And so yeah, that's a hurdle. Another hurdle is, well, it's you. It's like, oh, Kevin's got some hair-brained idea again. And so I got to get past that obstacle of it's a Kevin thing. And you probably face that too. It's like some people are going to question it just because it's coming from you. Another thing is it's different. It's weird. Yeah. Okay, now I'm talking about the college level. I'm talking about your college administrators, not just in your department.

(01:16:50):

Let's say you're past that, you got buy-in from your department. Now what about your college people? What about your deans and VPs and anybody else that gets wind of this? What about the enrollment people? They're going to have questions and concerns and they don't like things that are outside the standard formula because that just makes their job harder. Nobody wants things to make their job harder. It's the same thing with the financial aid people. They're going to have questions and problems and issues to solve, and they don't want to have to do that. So you're going to have to go over that hurdle. And then you have the advising people. They're the ones that are going to actually get you students in the course because students are going to be like, what in the world is Pre-A&P? I don't need it.

(01:17:32):

And the advisors are going to be the ones that sell your course for you, and you have to get them on board. I'd give you a little piece of advice, stay in touch with the advisors, and there's often a lot of turnover among advisors, so keep staying in touch with them, give them presentations from time to time, check in with them, give them data and so on, so that they can be a good salesperson for your course. It all boils down to it's hard to explain, and so now we got to explain it to a new set of people throughout the college and enrollment, financial aid advising and so on. So yeah, there's steps to take here. It's not like a regular course. It's a lot, not like a regular course.

(01:18:15):

And do some of your own advising. Try to get your other faculty members who are teaching the biology courses and the human bio and other kinds of courses of prerequisites and try to get them to encourage their students like, hey, you just took human bio. Why don't you do a capstone thing that's really going to bridge the gap between this course and your A&P course. It's really going to get you ready for A&P. So recruit more than just the official advisors, get some of the other faculty to be advisors for you. Another thing that I just want to point out one last time is students sometimes do find it hard to adapt to the weirdness that I mentioned. This course is weird, weird, weird, and it's hard to explain. If I mentioned that too. Yeah, it's hard to explain. So there is a little bit of an uphill climb, especially at first, helping students understand how the course is designed. So be prepared for that.

(01:19:10):

And don't be discouraged by it. It's just part of the game. That just happens when you're doing something new and different and exciting. I also find that I have to do a lot of encouraging of students who struggle. When students are struggling, they have to take a lot of attempts, and that can be discouraging to them, and they don't always understand that it's not multiple failures that are happening, it's intense learning that's happening. It's okay to fail and dust yourself off and figure out what went wrong and get back up again. We do that in sports and don't get overly discouraged. Right? We just keep on going. We fall over, we pick ourselves up, we miss the shot on goal. We do things like that. Well, it's the same thing here.

(01:19:54):

So we have to put on our coaching gear and blow the whistle, and we need to tell students that it's okay. It's better than okay. This is how the course works. This is what we need to do. And you know what, I'm telling you that too. When you get to those points where you're really having to deal with these struggling students and you're really having to engage with them, that's okay. It's better than okay, because isn't that why

we do this? Isn't that what we get out of it ourselves, is being there as a student struggles and help them get past that obstacle and see that they can do it and see that they have that success in themselves, that ability for success in themselves. That's what I love about teaching, helping students see themselves as capable of success.

(01:20:49):

I love helping students build their confidence so they're ready for A&P. And they're not ready just for A&P, they're ready for all the rest that follows that. Isn't that a great thing to participate in that with our students? Yeah, it is.

Staying Connected

Kevin Patton (01:21:06):

In this episode, I described a weird but effective refresher course that my A&P students can take just before they start their A&P one course. This Pre-A&P course covers the key concepts that we want and need our students to have ready to use when they first hit our A&P course. The basic stuff that we hope they remember from their prior courses, but hardly ever really do. It's a self-paced course, and it's personalized so that students can quickly review what they're already good at, but slow down and catch up when they hit a weak spot.

(01:21:54):

This optional course builds their confidence too, so that they're less likely to feel overwhelmed and afraid at the beginning or middle or maybe all the way through their A&P one course. Thinking about trying some of these ideas yourself? You may want to share this episode with your colleagues and supervisors before you start having those conversations. Simply go to theapprofessor.org/refer to get a personalized share link. As always, I have links to more information in the episode notes. If you don't see those links in your podcast player, go to the episode page at theapprofessor.org/140, where you can explore any ideas mentioned in this podcast. And while you're there, you can claim your digital credential for listening to this episode.

(01:22:57):

Let's hear about your experiences helping students get ready for their A&P course. Just call the podcast hotline at 1-833-LION-DEN or 1-833-546-6336, or send a recording or written message to podcast@theapprofessor.org. I'll see you down the road.

Aileen Park (01:23:30):

The A&P Professor is hosted by Dr. Kevin Patton, an award-winning professor and textbook author in human anatomy and physiology.

Kevin Patton (01:23:44):

This podcast is now available without a prescription.