

>> Deb Feickert: And if you have anything that you would like to chit-chat about, please do so in the chat, will not be shown on the screen. So, we are, thank you for asking, we are starting on page one. So, page one of the outline. Those would be that have the outline. That's where we're starting, terminology. All of the cash make every lecture, every lab will be available via your Canvas modules. I am recording, and as we talked about in lab, those of you that haven't had lab, we're going to talk about this in more detail. This will be embedded with the slides and my beautiful voice audio, so that you can always go back and study for the test. So, thank you for those quick questions here this afternoon. All right, I'm going to do my best here. That's, as I told most of you already, that's just my voice. Sorry. I will do my best. So, we are starting today with some definitions, basically, to get us going into our semester. And so, our first definition is just anatomy, and it's the study of structure. What does that mean? The structure of something, and we're talking about the human body, is its composition and organization. What do those words mean? Composition is what is something made of. So, in terms of the human body composition could be a specific structure, or it could be cell types, or it could be the tissue types. It could have something to do with the chemical makeup, anything that makes up that structure, that might mean its composition, and organization means how is it put together? So, when we're talking about anatomy the rest of the semester, we are going to be talking about structures. And so, we can be looking at individual structures. We'd be looking at organs or combing them into organ systems. This is all going to have to do with structure this semester. We can look at anatomy several different ways. And so, we're going to start this week with microscopic anatomy, and we all know what a microscope is. So, microscopic anatomy is we're looking at structures of the human body that we can't see without a microscope. It's also called fine anatomy. So, we're going to get started this week. Our next lecture for most of us, or for some of us, is the cell, and then, we're going to move into histology. Both of these would be microscopic ways to look at the building blocks of the human body. So, that would be the study of cells or the study of tissues. Study of cells, cytology. Study of tissues, histology. Okay, so, this is our first side note. When I say to you make a side note, that means I'm going to be saying something to you that is not on the slide, but that does not mean it will not be covered on a test, and it's most likely information that will help you to identify information throughout the semester. So, here's our first side note. You want to start recognizing the root words of words that you don't already know. Okay, now cytology, I know you are you know. That root word, cyto-, means cell. And so, if I know the Greek and/or Latin root words for anatomical terms, which is where most of these anatomical terms come from, I'm going to start feeling more confident with what I need to look for or discuss as I'm talking about human anatomy. So, cyto-, anytime I see cyt- or cyto-, I'm going to know that I'm looking for some kind of cell. So, make little notes in the side of your notes, when we're talking about something that isn't on the page that will help for the rest of the semester. First side note, so, the other way if we have microscopic anatomy to look at anatomy would be macro. Macro means larger large-scale. So, now I'm

looking at things that I don't need to use a microscope to see. It's also called gross anatomy, which is, honestly, if we were in the lab and we were looking at some of the wet structures that we look at in lab, people call that gross anatomy anyway, but that's another discussion for another day. So, what are we going to say? We can subdivide microscopic anatomy into different types, or places, or ways to look at structures. So, one way might be what we call surface anatomy. And so, surface anatomy is going to have – be sort of talking about some general form or shape or superficial markings of a structure. So, we would often use surface anatomy that is this description of something by its form, things like, right, long, short. That's a form, or shape, rectangular, circular, flat, etc., or superficial markings. That is something that we'd find on the outside of this structure and be able to name it. We're going to use that a lot with bones. So, surface anatomy is going to be a really good descriptor for us when we talk about the bones, which are coming up in lab next week. Another thing that we can look at is regional anatomy. So, regional means I take all of the structures within one specific area of the body. It can be superficial, right, towards the surface, or deep, inward. And so, you're going to look at some regional terms in just a second. Here's another idea in which to remember. If I remember body regions, the definition of certain body regions, then I will, again, know where to look for a particular structure. So, we are going to look at some regions in just a second, but just for now, let's just say we have a thoracic region. The word thoracic always means chest. We have an abdominal region, always means the trunk area. And so, we have structures, superficial in those regions, and deep. That is within the body, and we'll do some more definition of that in a bit. Then lastly, the last way that we can look at macroscopic anatomy is how our textbook and most of our lecture content is divided, and that's by the body systems, also called an organ system. And so, we're going to start off in the first few weeks. We're, going to, you know, build. So, we're looking at terms today. We're going to be talking about cells and tissues in the next few days. But then, we're going to start on the body systems. Now we're going to start with the integumentary system, the skin and its accessory structures, and we're going to, right, our outside covering, and then we're going to look at all the body systems from there. So, that is how we, in our class, are subdividing our look at organizing anatomy. All right, so now we have some terminology that we're going to use all semester. I'm going to pull all of these up at the same time, because I want you to see this diagram. When, the rest of the semester, if I'm asking you – let me change that. When I'm asking you to give me information about a certain structure's location, bodily distribution, you should always, always, always assume standard anatomical position. It's called SAP, and I'm not going to say that to you again. Well, that's a lie. I will say that to you again, but after a while, you will need to just know that if I'm asking you a question about location, you are assuming standard anatomical position. So, this is what it looks like. We're standing up. Our feet are parallel and flat on the floor. You can see this model. The head is level. The eyes are looking forward. Arms are at other side of the body. Palms facing forward, and it's important because this particular photograph is not a perfect

representation of the thumbs. With thumbs should actually – I want you to put your arms, both sides of your body, and lift your thumbs away from your palm. That’s pointing away from your body. So, that would be a better photograph of standard anatomical position. So, any time we talk about positioning, we are going to be assuming standard anatomical position. Two terms that go along with standard anatomical positioning clinically, because most of you are going into some sort of healthcare profession, would be supine and prone, and supine – most of the time in a clinical setting, you might sometimes deal with somebody that’s standing up, but most of the time, you’re going to be dealing with somebody in a bed, and so, if that’s the case, supine means lying down with the face up, and prone is lying down with the face down, standard anatomical position. What else? We are going to talk about this all semester, as well, this idea of planes, or sections, and that is that we can cut the body, or any structure of the body, into some piece or portion, and there are just three planes, three sections, that that is done on the human body. And so, the first is called the frontal, or coronal section or plane. So, now I want you to know something here on the slideshow. Frontal, and in parentheses, coronal, they are synonymous terms. So, you can use either of those terms interchangeably. But then, I’m telling you is the direction this cut is made. This is not, this word vertical, is not to be used interchangeably with frontal or coronal. That’s just telling you how the cut is made. And so, a frontal or coronal section or plane is a vertical cut. I’ll bring the diagram up here. A vertical cut here is the coronal plane. It divides the body, or the structure of the organ, so it can be the whole body that we’re cutting, or it can just be in the structure we’re looking at into a front and a back. Now we’re going to define these terms, anterior and posterior, in just a moment, but that is the direction of the cut. So, this is what it looks like if my cut were right here. So, if I put this cut right here, right, that’s a vertical cut, and now I divided the body into a front and a back. That’s a frontal, or coronal, cut. My next section, or plane, remember, there are only three, is called transverse, or cross, there’s that word section, or cross sectional. Those two terms can be used interchangeably. A transverse or cross-sectional cut, or a plane, is now a horizontal cut. So, that word, horizontal, cannot be used to define this section. It’s just telling me how the cut is made. And a transverse, or cross-sectional cut, is one that separates the body or structure or organ, into an upper part and a lower part. The words are superior and inferior. So, here is my transverse length. If I cut here on this poor woman’s body, then I would have an upper part and a lower part, superior, inferior. Does it only have to be right here? No, I could make that cut right here, or I can make that cut right here, or I can make that cut right here, or I could just take the leg and just cut the leg in that direction. As long as the cut is horizontal, and I’m standing in the standard anatomical position, that would be a transverse, or cross-sectional, cut. The last is called sagittal. So, the sagittal plane is going to cut through the body, or structure in an organ, again, vertically, but this time, the vertical cut is going to divide that structure, or the body, into a right and left portion. So, this is that mid-sagittal cut here, right? So, if I make this cut, I’m going to end up with a right and a left portion. Now, with sagittal, I have a specific

term that I just mentioned to you that I must know specifically, and that is the word midsagittal. So, the cut that I showed you on the previous diagram is midsagittal. It divides that body along its midline and creates two, for the most part, at least outwardly, equal halves. Now internal, is it going to be completely equal? No, because certain organs of our body are not bilateral, but for the most part, we have an equal right and left half. But if I don't cut right along the midline of the body or a particular structure, the word is just sagittal. Now I could use the word para-, which means to the side of middle, and that's fine too. So, if I'm talking about a cut that's off center, not in the middle, but it's a vertical cut that's given me a right portion and left portion, that's just called sagittal, or parasagittal. I'm going to go back one more so you can see what that looks like again. So, this is mid sagittal. If I cut to one side, that sagittal. Midsagittal is right up the center. Sagittal is not down the middle. Okay, those are my three body sections or planes. Those are going to be important because we are going to be looking at structures throughout the semester that are going to be cut. And so, for instance, I'll use the heart as an example a couple of times today. The heart, when we look at it, we're going to look at a frontal cut, and you need to know what that means as you're looking at a heart in a frontal cut. All right, so, we've already mentioned some of these directional terms. Let's now define them [clears throat], excuse me, and this word relative is important. Relative meaning that these terms have to be used in relation to another term. And I'll give you some examples, so that makes sense. So, we've mentioned this one already. Relative to the front, which is, on our body, the belly side of our body, right? We're not going to say it anymore, but that's what we mean. So, the terms that refer to the front or the back of our body are, again, anterior and posterior. Now you might also see, and in parentheses, I've shown you here these two biological terms, ventral and dorsal. We do sometimes use those terms in human anatomy, the anterior and posterior, and you will see them, I should say, but anterior and posterior are more correct terms for the human body. Not to say ventral and dorsal aren't correct, but those are more biological, other animal type terms. So, anterior, in definition, means in front of something else, or towards the front surface. Whereas posterior means in back of something else or towards the back surface. So, with that in mind, let's look. We've seen this one already. So, again, the important thing here is relative. We can't just say, and let's use the heart again. Oh, wait, do I want to use the heart? Let's use – yeah, let's use the heart. So, the heart, in order to describe the heart in terms of its location, and use the terms anterior and posterior, we have to use another body parts of finish off our explanation. So, we can't just say the heart is anterior. We would have to say the heart is anterior to something else. So, the heart is anterior to the spinal column, but the heart isn't just anterior. We can also say the heart is posterior to something, because the heart is also posterior to the sternum, which is your breastbone. So, that's what it means by relatives. You have to use these terms, anterior, posterior, all of the terms we're going to use, in describing the location of a structure based upon its relationship to another structure, anterior/posterior. The next two terms, you're also seeing if these are – most of these are going to be in pairs

because we're going to have an opposite, right, in front of, in back of. We've used this one already as well. So, these two terms are in relation to the head or feet, superior and inferior. Superior means toward the head or above some other structure, and inferior means towards the feet or below another structure. Again, we're going to see these two terms in parentheses, cranial and caudal, and that is – those are terms that aren't incorrect. They are sometimes used, but the more correct terms for human anatomy are superior and inferior. So, we'll take a look at that. I'm going to ask you not to screenshot my slideshow. You are going to have access to this podcast in its entirety. If you were not in the lab already, one of the things I mentioned in the first two labs is that screenshotting is considered cheating. So, please do not screenshot from your computer. Thank you. Superior and inferior, the direction you're seeing here. And so, let's get right toward the head or above something else, away from the head, or toward the feet, or below something else. Let's use the head. So, if I'm looking at the nose, and I'm going to use these terms, I could say the nose is inferior to the forehead, but the nose is also superior to the mouth. So, in order to use those terms, I need to have another structure that I am comparing it to. Comparison. The next directional terms have to do with the midline of the body, medial and lateral. So, the term medial means toward the midline of the body. Lateral means away from the midline of the body, and again, another specialized term, bilateral. Structures that are bilateral are on both sides of the body. Thus, if I'm describing those, I have to use the term bilateral to be 100% correct in my explanation. We'll look at some examples in the second. And then, I have what are – we've used this already, deep and superficial. So, a structure that's deep is more toward the inside of the body, or it's underneath another structure of the body. Whereas superficial is more for the outside of the surface of the body, or it's above another structure. Often, with deep and superficial, I'm talking about some structure that has layers to it. So, make long note of this, because we'll talk about this in just a few lectures from now. The skin has layers, and so, when we talk about the layers of the skin, we talk about some of the layers are more superficial. That is, toward the outside of the body, and other layers are deep, more towards the inside of the body, and they lay on top of each other. It's superficial. Oops, sorry. And so, midline of the body, a structure that's more toward the midline is more medial. Structures that are more towards the outside are more lateral. So, let's talk about the navel, the belly button, versus the arms. So, we would say the navel is more medial than the arms, and let's do this very specifically. This is what I mean about specific with lateral versus bilateral. If I said the right arm, the right arm, is more what to the navel? We're going to say it is lateral, but if I said both arms are what to the navel, we would say bilateral. So, be sure that I'm giving you some test-type situations. This is my first time to tell you on a test, read carefully what is being asked. All right, and then, the point of attachment of appendage, here's some of our last relative directional terms, the words proximal and distal. I'm going to show this to you, so we can start with that. When I'm talking about the appendages, my appendages attach to my trunk, right? So, here are my upper appendages. Here my lower appendages. This is the trunk,

and they attach, or the structure that I'm asking about – so here's the length of the appendage, the upper appendage. I use the words proximal and distal based upon the point of attachment. So, for the upper appendage, the point of attachment is the shoulder. So, let's do this. If I'm talking about the elbow, and I say the elbow is where in comparison to the shoulder? We would say the elbow is distal, because it's further from the point of attachment. If I say where is the elbow compared to the wrist? The elbow is more proximal, because it's closer to the point of attachment. So, always using the terms proximal and distal with images. Also, though, with any body part structure that has a link to it. So, something like vertebral column is quite long. It has a proximal and distal end, and we would use those terms in between. The digestive tract is quite long. It starts at the mouth, ends at the anus, and any point in between, we would use the words proximal and distal. So, please make a note. So, let's actually – oh, no, one more thing. So, the human body, then, is partitioned into main regions, an axial region, which is the head, neck, and trunk, and the appendicular region, which is the limbs or appendages. We are also going to see these two main divisions when we talk about the skeleton. There's an axial skeleton, head, neck, and trunk bones, appendicular skeleton, bones of the limbs and the girdles that hold the limbs to the trunk. So, these are just a few. These are just a few. You'll see this in a moment with the diagram that I'm going to show you. But what did we say at the beginning, if you start to know what the word means, then you'll start to know where to look for structures. Every time we see the word cervical, we're going to think neck, because that's what the word cervical means. Every time we hear the word brachial, we're going to think upper arm because that's what brachial means. Every time we hear axilla, we're going to think armpit. The plantar surface is the bottom of the foot. Palmer surface is the anterior of the hand. Dorsum surface is the top of the foot or the back of the hand. The word inguinal means groin, and these are just a few. If we start to know what these regions are, we'll know what to look for when we are asked way later in the semester to look for the brachial plexus. Plexus is a group of intertwined spinal nerves. We'll know where to look. So, start on your regions now. All right, so, again, with all that information, I'm going to ask you to tell me a few things about the fingernails. I want you to just jot it down on your notes the questions that I'm going to ask, because again, depending on what the question asks, is a more specific answer. So, put yourself in standard anatomical position right now wherever you are, standard anatomical position, and so, my first question is jot it down with one of your hands. You're in standard anatomical position. Mark down what surface of the hand are the fingernails found on? So, first we're just going to say right down the surface of the hand. So, write that down on our notes. Write the surface of the hand, okay? And then, the next question is where are the fingernails compared to the fingerprints. Where are the fingernails compared to the fingerprints? And lastly, just jot that down. And then, lastly, where the fingernails compared to the back of the wrist, the back of the wrist? And so, here's what you should have said. The fingernails are on the right? We're looking at the posterior of the hand, back of the hand, dorsum surface. And the fingernails in comparison to the

fingerprints are posterior, but you could also say dorsum. And the fingernails compared to the back of the wrist are distal. They're further away from the point of attachment at the shoulder. And so, if you wrote all of those things down, you are 100% correct. Good job. So, those are just a few regions. Here are all of the body regions, right? So, we talked about brachial and axillary being over here. Deltoid is always going to be in the shoulder. Carpal is always going to be in the wrist. Femoral is always going to be in the thigh, on and on and on and on and on. For the posterior, right, thoracic, this is posterior. The thoracic region is anterior, as well. Vertebral region, someone needs to mute their mic please. Mute your mics. Lumbar region is always the lower back. So, these are regions we will learn to know and love. All right, last one, internal body cavities. So, this is a general statement. Please write it down to the side. General statement. The internal body cavities protect and restrict the internal organs, which are called viscera. And so, as we go through the semester, one of the first things we said in lab was, if you have been in lab already, what are we going to have to know? That list of things we'll need to know, and the last thing on the list was functions, functions, functions. So, sometimes, we talk about general function. This is a general function for all body cavities. Most of the time, we're going to talk about specific functions. So, the cranial cavity, where is it? That would be to find its location. It's the space, right, space is a cavity, formed by the bones of the skull, and its specific function is to house, right, enclose, and protect the brain. So, this is a general function for all cavities. This is the specific function of the cranial cavity. It's connected to, directly, the spinal cavity, which is a space. Again, a cavity is a space, which is inside the entire length of the vertebral column, and its specific function is to house and protect the spinal cord. General, specific. Here's the cranial cavity directly connected to the spinal cavity. House and protect the brain, house and protect the spinal cord. We mentioned the thoracic cavity already today. The thoracic cavity is the space, a cavity is a space, inside the rib cage superior to the skeletal muscle called the diaphragm. So, the diaphragm is separating my thoracic cavity from my abdominal cavity. Inside of the thoracic cavity, I have a couple of membranes called serous membranes, and those serous membranes are called the pleural sacs. This word, pleura, make a side note, every time I see it, I'm going to think lungs, and I have two lungs. So, each lung is surrounded by its own serous membrane called a pleural sac, and I also have a heart inside there, and it has a serous membrane called peri-, peri- means surrounding; -cardial means heart, surrounding the heart, a serous membrane called the pericardial sac, or pericardium, right? So, here's my thoracic cavity. This is a lung. This is a lung, and this is the serous membrane around one lung called the pleura, pleura, and the heart is missing. Here's the skeletal muscle, diaphragm. Abdominopelvic cavity has two parts. The abdominal part of the cavity is called the abdominal cavity. Space, again, cavity is a space. It's going to be inferior to that skeletal muscle called the diaphragm we just saw, and superior to our urinary bladder. The abdominal cavity also has a serous membrane that is called the peritoneum, or peritoneal sac, and this serous membrane surrounds the upper digestive organs, okay, specific job,

and the pelvic cavity of the abdominopelvic cavity is the space inferior to the serous membrane called the peritoneum within the bones of the pelvis. And it is going to house and protect, we'll have the word protect there, right? House and protect the lower intestinal tract, the urinary bladder, and reproductive organs, specific job. Specific job. And so, in blue, again, this is the peritoneum. So, it surrounds and encapsulates. It has some very specific jobs that we'll talk about when we get to it in the digestive system, but it's surrounding all of the upper visceral organs in the abdominal cavity. Whoops, sorry, sorry, sorry. And it is separated from the thoracic cavity by here it is, that skeletal muscle diaphragm. The pelvic cavity then is – here's the edge of the peritoneum is within the bones of the pelvis, including the pubic bone here, and we see the urinary bladder. This is the prostate gland, a reproductive organ in males, and the lower digestive tract, abdominal cavity. All right, that is our lecture for the day. Now hold on one second. I'm just going to stop the recording.