Students: What is the first thing to look for when observing bones?
Is it human or non-human? That is the first question I ask. The shape, or morphology, of the bones allows identification as human or non-human. If the bones are non-human, then they are usually not of forensic significance. There is an excellent book that is a great reference for identifying bones called “Human and Non-human Bone Identification” by Diane France.

Students: Can you determine the sex of an animal from their bones?
Humans are animals and we identify sex primarily by looking at the morphology, or shape, of the bones in the pelvis. Only females can give birth and therefore their hip bones have subtle differences in shape that allow the baby to pass through the pelvic inlet, or birth canal. For non-human sex identification you will have to consult a zooarchaeologist or vertebrate anatomist!

Students: How can you tell the race of a skeleton?
We typically do not use the term “race” but instead try to identify an individual’s ancestry. DNA is heritable – it is transferred to off-spring from parents. This genetic code is expressed in a number of different ways that can be “read.” Analyzing the DNA through chemical analysis is one way to determine ancestry, but these tests are costly and it can be difficult to extract accurate DNA from older bone. Another way to assess ancestry is through cranial morphology, or the shape of the skull. Cranial morphology is heritable and can be recorded through a series of measurements. Using special tools and statistical programs the dimensions of a skull can be collected and compared to populations around the world. The region that the skull most closely compares to would likely indicate the individual’s ancestry. It is a statistical approach based on comparisons with a known body of data. There are also non-metric traits in bones and teeth that are sometimes used to assess ancestry because they are more frequent in certain groups or populations.

Students: If you have two skeletons, can you tell if they are related by looking at the bones?
Simple, gross observation won’t confirm relationships between skeletons. Similar to determining ancestry, one would have to identify shared markers like DNA, non-metric traits, etc. Confirmation of relatedness could only be obtained through DNA comparisons however.

Students: Can you tell much about dental care in Jamestown?
Because most of the early Jamestown colonists were young people who did not have access to sugary foods their dentition was relatively good compared to ours today. Cavities were infrequent, but if they did occur they would lead to an abscess which was only treated through the extraction of the tooth. Several loose teeth with decay have been found throughout the James Fort site. These teeth were likely pulled and disposed of.

Students: How can you tell how long a person has been dead?
In contemporary forensic case work there are a number of clues that provide information for time since death. These include the preservation of soft tissues (skin, muscle, etc), the preservation of bone and its weathering from exposure to the elements (sun-bleaching, algae staining for example), marks from animal scavenging, and the presence of certain insects which populate the body at different stages of decomposition. When evaluating all of these factors it is also important to consider the season since summer heat and humidity will result in faster decomposition than winter cold and dry conditions. For archaeological remains there are also a number of ways to determine time since death. Artifacts with the bones (buttons, clasps, shroud pins, dental work, even coffin hardware) might identify a certain time period. Analysis of soils, erosion, and natural concretions on bones can aid in identifying some skeletal remains. Radiocarbon dating is also a way to chemically assess the age of a bone.
Students: Have you worked on mummies?
Yes! There are mummies from all around the world and they can provide so much information on the people and culture they represent. Some mummies are the result of the way a body was treated, or prepared, after death. Egyptian mummies would be an example of this. Other mummies are naturally created from the environment due to hot dry conditions (desert) or cold dry conditions. In graduate school I had the opportunity to study mummies from Peru. These were naturally mummified bodies buried in stone-lined cysts in the Atacama Desert. They were truly time capsules and not only gave information on the person and cause of death, but also allowed us to learn about their clothing and style of dress, their technology, even their hair styles, etc. More recently we have studied human remains in cast iron coffins in North America dating to the 19th century. If sealed, the coffin can provide an environment that creates an “American mummy”. These remains have allowed us to identify these individuals and determine cause of death, in addition to learning about burial customs and clothing, and many other aspects of body preservation in various environments.

Students: What [can you learn from] the non-bone matter in burial sites?
Artifacts recovered from burial sites help date the remains. They also provide clues about what was occurring at a certain location before, during, or after, the individual was buried. For example, remains of an old structure built over a burial would mean the grave predates the structure and that by the time the structure was built, the presence of the grave was likely unknown.

Students: Do you ever use computer 3-d modeling instead of clay when doing facial reconstruction?
Yes, although the way we do a particular facial reconstruction depends on how we want to use it. If it was a forensic case and we wanted to get the image out quickly we would probably work with a facial artist and do the reconstruction on the computer. If we knew the reconstruction was to be used in an exhibit we would probably want a bust made for display. That would entail working with an artist to create the more traditional form. We have found that computer reconstructions do not create as lifelike a figure and therefore are not what we have used for exhibit purposes.

Students: How do you become a forensic anthropologist?
You first need to get an undergraduate college degree. Then you would want to attend graduate school and get a degree in Physical Anthropology. Try to get experience through volunteer work or internships as well.

Students: What is your opinion on the "ethics" of forensic anthropology? (e.g. using human skeletons in classrooms, displays, etc.)?
I personally believe that if treated respectfully human bones are a valuable teaching and research tool that lets us learn about ourselves in ways no other material can teach us. Not only do bones provide information on history and the past, but they give us information on human adaptation, evolution, health and disease, and a number of different biological and medical topics. Many of these topics are extremely relevant to our lives today. Some people may object based on religious beliefs, but I consider myself a very religious person and I have no conflict in using bones for bettering the human condition through research and education. It ultimately is a personal choice, but most do not have an issue donating their organs after death if it can help someone else. Bones can be viewed in the same way and more and more people are donating their remains and the remains of their family members for this purpose.

Students: Do you watch the show "Bones"? Does it accurately represent the work of a forensic anthropologist?
I have seen the show but I am not a regular viewer. Some of the tests they use to complete their analyses are similar to ones we use in our lab. The big difference is the amount of time and effort invested in conducting the analysis. Whereas the TV episode wraps up in a matter of days, real examinations may take weeks or months depending on the different tests completed. Our labs are also a lot less fancy and high-tech. However, I can say that the cases we do in real life are even MORE interesting than what you see on TV. The old saying “truth is stranger than fiction” is really true!