Vocabulary is needed to understand and explain concepts. *Sample vocabulary includes:*

- alimentary tract
- indigestible
- metabolic
- nutrient
- waste
- accessory digestive organ(s)
- enzyme
- mechanical breakdown/digestion
- chemical breakdown/digestion
- ingestion
- propulsion
- segmentation
- peristalsis
- defecation
- mucosa
- submucosa
- muscularis
- serosa
- adventitia
- peritoneum
- nerve plexus
- enteric nervous system
- lamina propria
- mesentery/mesenteric
- splanchnic
- portal
- myenteric
- hepatic
- gastric
- visceral
- pharynx
- olfaction
- intrinsic gland
- extrinsic gland
- parasympathetic
- deglutition
- fundus
- pylorus
- hydrochloric acid HCl
- intrinsic factor
- pepsinogen/pepsin
- lipase
- gastrin
- secretin
- cholecystokinin
- ileocecal
- duodenum
- jejunum
- ileum
- greater and lesser omentum
- circular folds/plicae circulares
- villi
- microvilli/brush border
- lacteal
- enteroendocrine cells
- falciform ligament
- caudate
- quadrate
- porta
- hepatocyte
- stellate macrophages
- bile
- bile salts
- bilirubin - stercobilin
- portal triad
- detoxification
- gall bladder
- cystic duct
- common bile duct
- pancreatic acini
- pancreatic islets
- zymogen
- protease
- amylase
- nuclease
- hepatopancreatic ampulla and sphincter
tenia coli
- hastrum – hastra
- colon
- appendix
- retroperitoneal
colic flexure
- anal columns
- rectal valves
- mass movements
- oligosaccharide
- monosaccharide
cotransport
- amino acid
- emulsification
- triglyceride
- monoglyceride
- fatty acid
- chylomicron
- micelle
- electrolyte

What you should learn, know, or do in preparation for the lecture test on the digestive system -
*Major concepts that you must remember and understand include:*

The function of the system. Being able to differentiate between the function of the various tubes of the alimentary tract as well as accessory organs at ingestion (mouth) and abdomen (liver/gall bladder and pancreas).

You should be able to list the anatomical changes that occur from the beginning to the end of the tract. You are trying to learn the names of the tubes and structures as well as gaining a basic understanding (why) of histologic changes. As an example, consider why the muscularis externa is constructed differently in the stomach, esophagus, small intestine and large intestine. You can start by learning the four layers of the alimentary tract and exceptions. Your understanding will not be complete if you do not know what the function of each layer is.

Be sure to be able to differentiate between digestion and propulsion, chemical digestion and mechanical digestion, peristalsis and segmentation, ingestion and defecation (if you don’t already know). Along the way, note the structures and/or secretions that facilitate the function of the system.
You should also have a basic knowledge of the body’s control over digestion. Entry-level understanding is that CNS control, local nervous control, and intrinsic and extrinsic hormonal control are all at work at the same time. You need to match this basic understanding with the anatomy that gets the control done. As an example, consider the enteroendocrine cells releasing hormones to control production and release of pancreatic juice.

Be able to describe the location of the enteric nervous system and its role in digestion. Differentiate what it does with autonomic nervous control using parasympathetic and sympathetic signals. Explain long and short reflexes.

Keep track of the amount of fluid (water, mucus, enzymes, etc.) that is released into the alimentary tract by various tissues and glands along the way. Keep and inventory of the major secretions and what they contain. Consider where in the system digestive enzymes are released into the lumen and any ‘helper’ solutions that are also added.

Be clear about the tight control over stomach emptying into the duodenum. How and why is this process controlled?

Any A&P student should be able to discuss the importance of surface area in body systems where absorption occurs. In this system we also see the importance of surface area in enzyme attack. Be clear about the many adaptations present in the SI that greatly increase its surface area.

You aren’t expected to memorize every digestive enzyme, what it does, or who produces it. You are required to know the major categories (one category for each of the 4 biomolecules), where they are secreted, where they are active. YES there is a distinction. You must also know that the last step in chemical digestion for many biomolecules is at the membranes of the absorptive cells of the small intestine.

The liver is an incredibly important organ. You have already seen its role in maintaining blood composition and functions through its release of most plasma proteins. In this chapter, its role in bile production and action on blood leaving the GI is described. Don’t leave class unless you understand the importance of these two functions. Use your knowledge of liver micro-anatomy to help understand how the liver completes these functions.

Same goes for pancreas. Function is based on form (anatomy). Why is this organ/gland so important?

Some concepts you should explore on your own:

The production of HCl by parietal cells of the stomach mucosa: proton pumps and drugs that inhibit acid production.
The presence of bacteria and other organisms in human alimentary tracts – benefits and immune response.

Benefits of each class of nutrients.

IMPORTANT: Chapter 24 is titled Nutrition, Metabolism, and Energy Balance. This important chapter is not covered in this course. Included within is description of the complex biochemistry of the body which often binds together the varied information an A&P student is asked to learn. If you are able to read and study this chapter, your understanding of A&P will mature greatly.

Concepts you can skip:

You do not need to study developmental aspects of digestion.