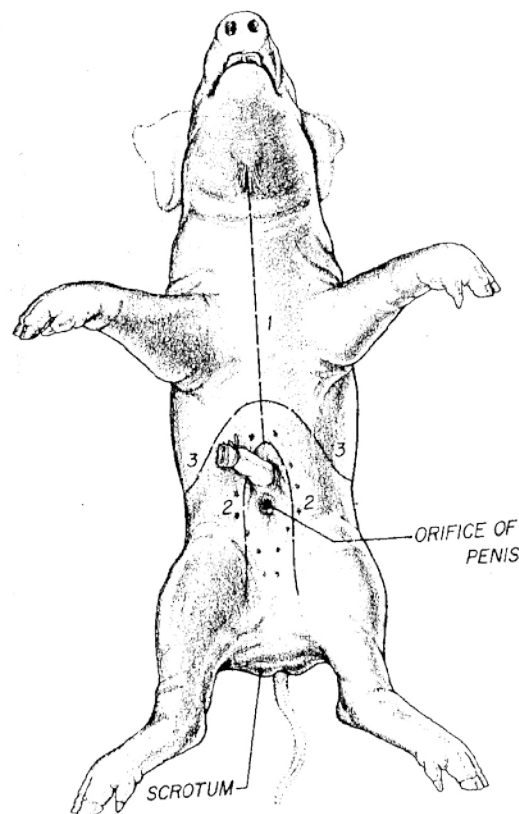


## Day 2 Part A: The Incision

1. Obtain your dissecting equipment and pig.
2. Place the fetal pig ventral side up in the dissecting tray.
3. Tie a string securely around a front limb. Run the string under the tray, pull it tight, and tie it to the other front limb. Repeat this procedure with the hind limbs to hold the legs apart so you can examine internal structures.
4. Study the diagram below. The dashed lines numbered 1-3 show the first set of incisions that you will make. To find the exact location for the incision marked 3, press along the thorax with your fingers to find the lower edge of the ribs. This is where you will make incision 3.

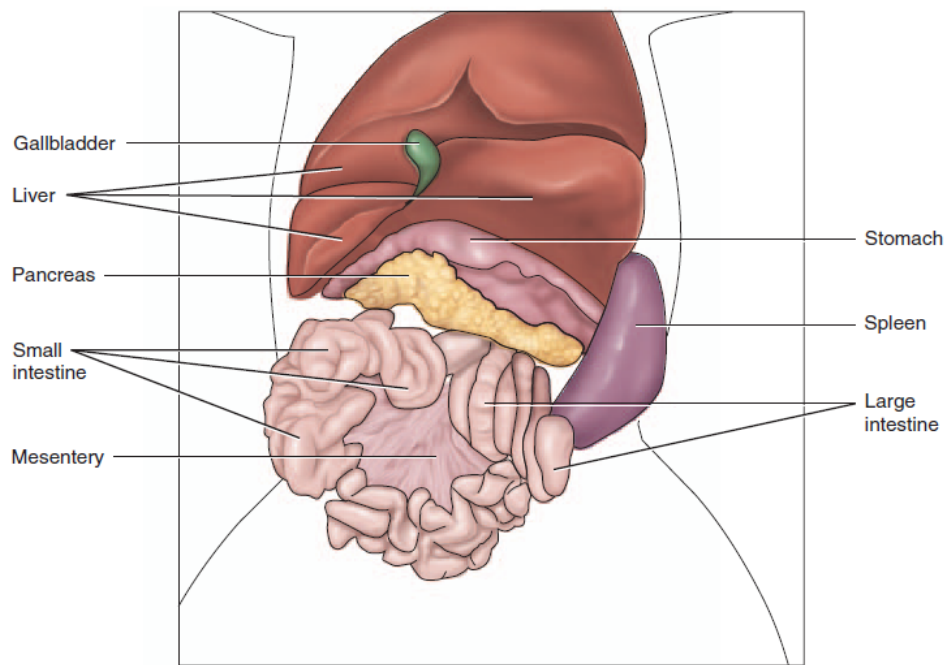


5. With scissors, make the incisions in order, beginning with 1. Be sure to keep the tips of your scissors pointed upward because a deep cut will destroy the organs below. Also, remember to cut away from yourself.
6. After you have made your incisions through the body wall, you will see the peritoneum, a thin layer of tissue that lines the body cavity. Cut through the **peritoneum** along the incision lines.
7. Spread the flaps of the body wall apart. Cut the umbilical vein which extends through the liver.

- Once the vein is cut, carefully pull the flap of skin, including the end of the umbilical cord between the hind legs. You are now able to see the organs of the abdominal cavity.

**If time remains continue with part B, the digestive tract. Otherwise, clean up and return your materials and pig as you did on day 1.**

## *Part B: Digestive System*



- Locate the **diaphragm**, a sheet of muscle that separates the abdominal cavity from the thoracic cavity. Find the most obvious structure in the abdominal cavity, the brownish-colored **liver**. Count the number of lobes.
- Find the tube-like **esophagus** which joins the mouth and the stomach. Food moves down the esophagus by muscular contractions after being softened by saliva in the mouth. Follow the esophagus and locate the soft, sac-like **stomach** beneath the liver.
- With scissors, cut along the outer curve of the stomach. Open the stomach and note the texture of its inner walls. These ridges inside the stomach are called **rugae** (pronounced rue-guy) and increase the area for the release of digestive enzymes. The stomach may not be empty because fetal pigs swallow amniotic fluid.
- The pig has a digestive system which is classified as **monogastric** or **nonruminant**. Humans also have this type of digestive system. They have one stomach (mono=one, gastric=stomach). Locate the entrance to the stomach or esophageal area, the **cardiac region** which is largest, and the **pyloric region** where the stomach narrows to join to the **small intestine**.

5. At the end of the stomach, there is a **sphincter** (pronounced s-fink-ter), or ring-shaped muscle to control food leaving the stomach and entering the **duodenum** (pronounced do-odd-deh-num). Locate the **cardiac sphincter** at the junction of the stomach and esophagus, and the **pyloric sphincter** at the junction of the stomach and small intestine. Fetal pigs receive their nourishment from their mother through the umbilical cord.
6. Identify the first part of the small intestine, the U-shaped **duodenum**, which connects to the lower end of the stomach. Pancreatic juice, made by the **pancreas**, and bile, made by the liver and stored in the **gall bladder**, are added to food here to continue digestion.
7. Study the rest of the small intestine. Notice that it is a coiled, narrow tube, held together by tissue called **mesentery**. The soupy, partly digested food that enters the small intestine from the stomach is called **chyme** (pronounced kime).
8. Carefully cut through the mesentery and uncoil the small intestine. Note and record its length in centimeters. The mid-section is called the **jejunum** (pronounced ja-june-um), while the last section is called the **ileum** (pronounced ill-ee-um).
9. With scissors, remove a 3-cm piece of the lower small intestine. Cut it open and rinse it out.
10. Observe the inner surface of the small intestine. Run your finger along it and note its texture. Using a magnifying glass, examine the **villi** (pronounced vil-eye), the tiny projections that line the small intestine and increase the surface area for absorption.
11. Follow the small intestine until it reaches the wider, looped **large intestine**. Cut the mesentery and unwind the large intestine or **colon**. Measure and record its length.
12. At the junction of the large and small intestine, locate a blind pouch called the **caecum** (pronounced seek-um). The caecum has no known function in the pig.
13. Notice that the large intestine leads into the **rectum**, a tube that runs posteriorly along the dorsal body wall. The rectum carries wastes to the opening called the **anus** where they are eliminated.
14. Locate the thin, white **pancreas** beneath the stomach and duodenum. Pancreatic juice flows through pancreatic ducts to the duodenum.
15. Between the lobes of the liver, find the small, greenish-brown **gall bladder**. Locate the hepatic duct which carries bile from the liver to the gall bladder.
16. Find the **spleen**, a long, reddish-brown organ wrapped around the stomach. The spleen filters out old red blood cells and produces new ones for the fetus.
17. On the diagram on the back of day 2 hand-in, label the pig's body organs.

**Clean up your materials and work area. Wrap the pig in damp paper towels and put it in a zip-lock plastic bag. Return your lab equipment and pig and then thoroughly wash your hands with soap.**