# Problem Set 1: Library Treasure Hunt

**Possibly useful resources:**

- *How to Find Articles*
- *Pub Med Help*
- *What's a "Review Article"?*

1. Choose some topic that interests you and is at least tangentially related to molecular biology. Estimate how many articles have been written related to that topic, where the topic is the main focus of the article. The topic should be sufficiently narrow that the number does not exceed 1000.

   Here's an example of a bad topic: *DNA replication*

   Here's an example of a good topic: *Control of transcription during the development of facial characteristics in dogs*

   ***Provide the topic, the number of articles, and the means by which you made the estimate.***

2. You're interested in annotating phage genomes and have learned that amongst the best annotated phage genomes is that of phage T4. Most work on T4 occurred prior to 1980. Find a review article concerning phage T4 written prior to that year.

   ***Provide a full reference to the article and the means by which you found it.***

3. You've just gotten a faculty position at a college in New Jersey, and you want to make sure that there is a yearly scientific meeting for you and your students to go to in the area (a very good thing to be concerned about!). The easiest way for that to happen is for you to organize it yourself. So you want to know who in the area works on your favorite bacterium. Define "area" as New Jersey and the surrounding three states (New York, Pennsylvania, and Delaware). Define "favorite bacterium" as Acinetobacter. Define "works on" as published an article within the past 10 years. How many ***laboratories*** are there that contributed those articles?

   ***Provide the number and the means by which you found it.***

4. Find someone who has published in an area similar to his/her name. Here's an example:

   > Cardiac malformations and midline skeletal defects in mice lacking filamin A.
   > AW Hart et al (2006). Hum Mol Genet 15:2457-67.

   ***Provide a reference to the article and the means by which you found it.***

5. You've run across a very curious article (you might be interested in taking a look at it):

   > Commoner B (1968). Failure of the Watson-Crick theory as a chemical explanation of inheritance. Nature 220:334-340

   Very strange! Has anyone has written in response to it? Find one or more articles that have (you might be interested in taking a look at them as well).

   ***Provide the reference(s) and the means by which you found it.***

6. Suppose you are an editor at a high class scientific journal, and you are considering the following submission for publication:

> *Mary had a little lamb, whose fleece was white as snow,*
> *And everywhere that Mary went, the lamb was sure to go.*
> *It followed her to school one day, which was against the rules.*
> *It made the children laugh and play, to see a lamb in school.*

You're inclined to reject the manuscript out of hand. It is shorter than the usual submission to your journal, but the main objection is the lack of what you perceive to be the rigor required by a scientific article. But your heart softens, and you resolve to fulfill your calling as an editor by editing, rewriting the submission to meet your specifications. What follows is the first paragraph of what came of your effort, the **Results** section of an article in which ***every assertion is connected to an observation***, either yours or someone else's, and ***every observation is connected to the means by which it was produced***.

**Cultural Impact of Human-Ovine Mutualism**

**Results**

An adolescent human female (code-named "Mary") was tagged with a fluorescent protein for subsequent identification and then released. In random observations (n=7) over the course of a day, she was repeatedly observed within 2 meters of an animal with morphological characteristics typical of sheep [1]. The length of the animal's ischium (pelvis bone) to the scapula (shoulder bone) was measured to be 18.7 cm. This places the animal in the smallest 5% of lambs in the 2010 U.S. lamb census [2].

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**References**


1. Reese WO (2009). Functional Anatomy and Physiology of Domesticated Animals. Fourth edition. Wiley-Blackwell, Danvers MA.
2. U.S. Bureau of Agronomic Statistics (2010). Morphological Assessment of Livestock. p.47. U.S. Government Printing Office, Washington DC.


Your task now is to complete the **Results** section of the manuscript, following the original as closely as possible but adhering to your high standards regarding evidence. However, those high standards for some reason do not prevent you from making up any facts you may need and any references to justify those facts. So feel free.

***Provide the Results and (possibly) References sections.***