The Virus Project
Writing Guide

SARS virus

BIOL 5230/6230 Spring 2013
Dr. Sharon Roberts

The Virus Project
“Writing is Thinking on Paper”
-William Zinsser

Overview:

The overall goal of the Virus Project is to produce two written documents about a virus that you have chosen to study. You will write a short scientific review article intended for other students and scientists and a public service announcement (PSA) that provides useful information about your virus to the public.

The scientific review article includes all the characteristics of your virus’s biology that we will have covered in class, including taxonomy, structure, replication, epidemiology and pathogenesis. It is written using scientific nomenclature and organized in an appropriate scientific style. In keeping with the tradition of scientific writing, the information is paraphrased rather than quoted and the document includes in-text citations and a Literature Cited section at the end of the document.

The type of PSA you write for a popular audience will depend on the virus you choose and its most important impact on society. This document will need to be easily understood by people who do not know as much about viruses as you do. You’ll need to decide what information is useful in educating the public about the virus so it most likely will not contain all of the information that is in your review. A major part of this assignment is deciding what information is needed and how to present it.

As I mentioned in class, I’ve developed a list of viruses that I think fit this project well. Some of them may be viruses with which you are not terribly familiar, but I want you to do some exploration before you pick a virus to study. Some of these viruses have an unusual replication strategy while others have interesting pathology and/or epidemiology. If you would like to work on a virus that is not on the list, that’s probably OK, but you must get my approval.

In addition to the final Virus Project that will be due at the end of the semester, you will turn in a draft of one section of your review article. Assignment 7 is also part of this project.

Assignments:

Assignment 7:

On Tuesday, February 26 we will meet at the RBD Library in one of their instructional computer labs for a session on literature search strategies. You should come with an idea of 2 or 3 viruses from the list that you think might be interesting to study. After a brief lesson on search strategies, you will search for articles about these viruses using an electronic database. After reviewing the papers, you will pick the virus you wish to study and prepare an annotated bibliography. For your bibliography you must find 5 articles, two of which are review articles and three of which are primary literature. You are expected to summarize in your own words the information in the reference. Your bibliography will be due February 28.

Part 1: Draft of the taxonomy, structure and replication of your virus
For this assignment, you will write a review that describes the structure of the virus you have chosen to study and its replication. For most of the virus classes in the Baltimore classification we have reviewed how they express the viral genome, synthesize progeny genomes and assemble virions. You are to do the same thing with your virus.

You can start with the material in the book or in the lectures (if your virus or virus family was discussed in class), but you need also to find at least one outside source. It is acceptable to use review articles.

You are expected to include figures to illustrate your information. You may find figures on the web or in your article, but be sure that you are using a credible source. As you choose your figures, give thought to how they can enhance what you are saying. Every figure must have a caption written by you and it must be referenced in the text. This is how figures are used in scientific communications so this will give you practice. If you use an image from another source, you must reference the source.

All of your information must include in-text citations and the full reference at the end of the paper.

This draft is due March 8.

**Virus List**

<table>
<thead>
<tr>
<th>Virus Name</th>
<th>Virus Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>rotavirus</td>
<td>Norwalk virus</td>
</tr>
<tr>
<td>canine parvovirus</td>
<td>measles virus</td>
</tr>
<tr>
<td>yellow fever virus</td>
<td>Nipah virus</td>
</tr>
<tr>
<td>West Nile virus</td>
<td>varicella zoster virus</td>
</tr>
<tr>
<td>Sin Nombre virus</td>
<td>canine distemper virus</td>
</tr>
<tr>
<td>eastern equine encephalitis virus</td>
<td>feline leukemia virus</td>
</tr>
<tr>
<td>Ebola virus</td>
<td>hCoV-EMC</td>
</tr>
</tbody>
</table>

**Writing in Science:**

**Types of Scientific Writing**

Scientists write more than many students realize and they write a number of different types of documents and for different audiences. Among the most common forms of scientific writing are the primary journal article and the review paper. However, many scientists and specialists may also have jobs that require creating PSAs for the general public.

**Primary journal article:** This is the type of article in which scientists report the results of their research. Scientists and specialists read them. They are very focused and generally include the results of a number of experiments that address a fairly narrow research question. These papers include an introduction that generally states the current knowledge and the particular question they are addressing, a methods section that describes how the experiments were done, the results they obtained and finally a discussion in which they explain how these results fit into and expand our knowledge. They include a Literature Cited listing of any other papers cited in the article.
Review article: Review articles are articles that provide a summary or overview of the state of our knowledge on a particular topic. These are also intended for other scientists and specialists. They generally do not include much if any information on the experiments or specific results. They instead focus on our current understanding of the topic based on the work reported in many research papers and by many different scientists. These articles will summarize the information from many primary journal articles and often cite 100 or more research articles.

Public Service Announcement (PSA): These announcements are used to disseminate information to the general public. They are intended for everyone, not just specialists. They inform the public about important topics in many areas. They can take the form of TV or radio announcement, brochure, flyer or poster. Generally, these will contain few if any citations.

Annotated bibliography: The Literature Cited or Bibliography section of a published paper is a list of the sources for the information included in an article. This includes the information needed to identify and locate the source, such as author, title, journal) and nearly all scientific publications include these. An annotated bibliography includes a summary and sometimes an evaluation of the reference. While this type of scientific writing isn’t typically something that is published, it is a very useful tool that facilitates a literature search and can be very helpful in organizing the information a scientist will use in their papers.

Writing Your Paper

Locating and using articles
You are expected to locate and use scholarly sources for your work, both the scientific review and the PSA. Just because the PSA is written for a public audience, it must still contain reputable information from a reliable and authoritative source. These sources may include websites from the Centers for Disease Control and Prevention (CDC) or the National Institutes of Health (NIH), but you will need to evaluate the information you collect and avoid information posted by sources you can’t verify. Learning to do this and becoming familiar enough with the field takes time but you are expected to evaluate your sources.

We will have a workshop at the library lead by reference librarians who will teach you how to use PubMed and do effective literature searches. You may actually find many if not most of your sources that day, but keep in mind that the goal of this workshop is to teach you good searching strategies that may be useful in the future.

After you’ve collected your articles and other sources, you need to read them and take notes. You are not to work just from the abstract or summary. It is expected that you will read the articles, take notes on the information and write from your notes. This will help you learn to paraphrase and as the next section explains, in science writing we use paraphrasing extensively. It is not acceptable to use direct quotes and copying verbatim is plagiarism and is unethical.

Paraphrasing
It is the tradition of scientific writing to paraphrase our sources rather than to quote. You may have had much more experience with using quotes in your college writing, but for this project you will have to learn to paraphrase. Paraphrasing is simply putting the information in your own words. Students are sometimes not comfortable about doing this
particularly if they don’t feel they fully understand the material, but that’s no excuse. Copying from a source is representing the work as your own and that is plagiarism and it is unethical. If you are having trouble understanding some of your source material, come see me and I will help you with it, but I will treat plagiarism as cheating.

There are good habits that will help you avoid plagiarizing as well as some bad habits that can unintentionally lead to plagiarism.

**Good habits that will help you avoid plagiarism:**

It’s very easy to inadvertently plagiarize if you simply write your paper while reading your source articles. Most of us think of plagiarism as copying the text exactly and representing it as your own ideas without citation. But plagiarism can include changing some of the words here and there, retaining some of the same phrases or even retaining the same flow of ideas as the original article. You can avoid this by collecting and organizing the information you need from the articles before you start to write. This requires reading the articles and taking notes as you read, then organizing and compiling your notes and only then starting to write from your notes. As you take notes don’t just copy sentences from the article into your notes. Instead put the information into your own words. After you’ve read all of your sources, organize your notes and determine where the information should go in your article. Then write from this information.

If you develop this habit, you will write from your notes, not from the articles themselves. This does require that you take accurate and clear notes and keep track of your sources, but these skills are useful for many tasks beyond writing papers.

Here are three good sources on paraphrasing:
http://www.usciences.edu/writing/plagrism.shtml
http://owl.english.purdue.edu/owl/resource/563/02/
http://writing.wisc.edu/Handbook/QPA_paraphrase.html

**Formatting:**

All documents, except the PSA must be double-spaced, typed and include your name. The PSA will be in the form of a handout or brochure and is expected to be formatted as appropriate for the document, including font choice and size.

Your final documents will be graded on organization and formatting so don’t ignore these aspects of your work. Remember too, I expect that any document you turn in has been reviewed and edited beforehand. So, be sure to read your work and edit!!

**Using sources and citations:** Throughout your article you need to use scientific sources of information on your virus. As you read these sources, you need to take notes on the information and keep track of these sources. When you write your article, you will need to indicate the sources of your facts and this will require both an in-text citation and the listing of the reference at the end of your article in the Literature Cited section. The in-text citation can either be the author’s name and the year in parentheses (Roberts, 2009) or the citation’s number (1) in your references. List your references alphabetically.

**Scholarly articles:** Most of your sources will be articles from journals. Here’s a quick guide to referencing these documents in APA style:
http://owl.english.purdue.edu/owl/resource/560/07/. Increasingly, researchers find and read scholarly articles online. These online sources generally include a document object identifier or DOI. If you use sources that you find online be sure to include the DOI.
For help with referencing scholarly references found online, check out “Article From an Online Periodical with DOI Assigned” at http://owl.english.purdue.edu/owl/resource/560/10/.

**Electronic sources:** In addition to scholarly articles, there are online resources that are appropriate, such as the CDC. Referencing on-line material is a bit difficult and more varied. The reference given above can help you with formatting these sources.

**Rubrics:** I use rubrics to grade the first draft and the two final documents. They help me grade consistently, but I think their most important function is that they provide a guide as to what is expected from your writing. They can also help you learn what should be included in each of these types of documents.

**Useful resources:**

Auburn University Office of University Writing Student Resources: https://fp.auburn.edu/writing/researchCitation.aspx

Miller Writing Center: Located in the RBD Library. https://fp.auburn.edu/writing/writingcenter.aspx

Course page at the AU Libraries: http://libguides.auburn.edu/biol5230

Annotated Bibliographies: http://owl.english.purdue.edu/owl/resource/614/01/


If you have any questions or run into difficulty finding a reference or if you have trouble understanding any of the information in your sources, come to my office hours or make an appointment. I am happy to help.