Each of you will complete one research paper on genetics or evolution and a Botanical Life History paper. These papers are due on various dates during the semester (see syllabus). The first paper is not due until we are nearly halfway finished with the course, do not wait until then to begin your papers. If you would like me to take a look at your paper prior to submission, I would be glad to do so, as long as it is a week or more in advance.

General Information:
- No more than two students may write a paper on the same subject – first come first served.
- You need to generate an outline for your paper (to be submitted with the paper).
- A Xerox copy of the first page for each of your references (to be submitted with the paper).
- Use “headings” for each new section (i.e. Introduction, Distribution, Ecology, Morphology, etc.).
- Make sure your paper is not general in nature.
  - It should be on a specific topic (organism) as opposed to a taxonomic group.
  - Define technical terms that are not obvious to the reader.
- Cover specific information regarding your topic (anything unique).
  - Figures also need to be referred to in the body of the paper.
- Do not give human attributes to non-human organisms (anthropomorphism). This is a scientific paper, not an English paper!
- Proofread and check for spelling & punctuation errors.
  - Although this is not an English class, your papers should be polished before you turn it in. If you need assistance, please ask or go to the LAP for help (if you do not want to ask me).
  - Be aware of awkward, incomplete, fragmented, run-on or unfinished sentences.
  - Be sure to use the following words correctly: it’s & its; their & there & they’re; affect & effect.
  - Do not use contractions (i.e. use “do not” as opposed to “don’t”).
- Do not check out materials from our library until you are ready to use them. Our library may not have the materials that you are looking for; so many of you may be using the UCI science library.
- You need to get into the literature regarding your topic. I require at least 5 literature references. This means that you need to look into the primary and secondary literature. You cannot always trust tertiary literature (popular magazines and web sites). You may only use two web references! Any deviation from the 5 literature and greater than 2 web references will result in a 10 point deduction from your overall grade!!!
- You will need to spend more than just one day in the library and sitting in front of your computer working on your research papers! Your grade will most likely reflect the amount of hours that you spend on your papers.
  - Use 1” margins and a font size of 12. Number your pages!!!
  - Your paper should be between 5 – 10 pages in length. Cover page, figures and literature cited do not count as three pages!

Identify and develop your topic:
What are the main concepts to your research paper?
- If you cannot get 5 pages: there is too little information or sources, thus broaden your topic.
- If you have more than 12 pages: too much information or sources, thus narrow your topic.
- Do Not just type as you read from your sources!

Information gathering:
When you begin to write you paper, do not have all your reference around you the night before. Read through your references and take pertinent notes to get the background information to construct an outline. Once you have your outline completed, organize your notes accordingly. This should allow you to write your paper more efficiently. You may find yourself modifying your outline as you research your topic further.

As you gather your information, DO NOT transfer the information verbatim from your notes to your paper unless you have written them in your own words.
- There is a difference between the way that you write and when you copy and paste some else’s work. Your paper tends to become very choppy and difficult to follow.
- Be aware of plagiarism in your paper!

Writing your paper:
As you write your papers, you need to have an introduction, body paragraphs, conclusion/summary and a literature cited section (since this is scientific research paper).
Each new section should have a “heading” (i.e. Introduction, Morphology, Distribution, etc.).

Begin each paragraph with a proper topic sentence.

• Support your topic sentence with examples/proofs with literature.
• Make sure your intentions and points are clear. Are your arguments/information presented in a logical sequence?
• Make sure that you do not have one-sentence paragraphs. Try not to go longer than 10 sentences. Your typical paragraph should have 5-7 sentences.
• Make sure your paragraphs transition smoothly into the next paragraph.
• Use third person.
• Avoid unnecessary or repetitious words.

Conclusion/Summary: Do not leave the reader hanging

• Give a sense of completion.
• Do not discuss a topic in your conclusion.
• You could suggest further studies as you summarize your paper.
• End on a strong note, this is the last thing that the reader will most likely remember about your paper.

Literature Cited:
This is a science class, thus the Heading for this section is “Literature Cited,” not bibliography, works cited, references, etc. Evaluate what you find:

• Primary literature: original writings. Correct any wrong perception that you may get from other sources. You should have at least a couple of these to support your paper.
• Secondary literature: scholarly works based on primary literature. This is probably where you will gather most of your information.
• Tertiary literature: expository accounts based on secondary literature. These often include popular publications and web sites that may be unreliable. If you’re not sure, just ask or do not use it!

NOTE:
• NO encyclopedias!
• You must have at least 6 sources for your paper with no more than 2 web citations!

How to cite your literature in the body of your paper?

• Where the author(s) citation is place in your sentence is dependent on where that information is situated. The citation may be in the beginning, middle or end of your sentence. You may have citations in various areas within one sentence.
  For example:
  o Beginning: Baker (1955) proposed that self-compatible rather than self-incompatible plants will be favored in establishment following long distance dispersal to islands, which is referred to as Baker’s rule.
  o End with more than one citation: Wind pollination on islands is often associated with life-history features such as woodiness and dioecy (Lloyd 1985; Sakai et al. 1995a).
  o Middle: The floras of New Zealand (Webb and Kelly 1993), Hawaii (Carr et al. 1986), and the Galapagos (McMullen 1987) are deficient in taxa possessing homomorphic or heteromorphic incompatibility compared with continental areas.

How to do your Literature Cited section?

• Most scientific journals have specific requirements for the Literature Cited (LC) section. You may do your LC by either listing your cited literature alphabetically and not numbered (most commonly used) or list them numerically by which citation is used first, second, third, etc. in the body of the paper. In the last case, you would then number your sources in the LC because the paper citations would use numbers that correspond with your sources.
• Make sure your citations are done with accuracy, as it is important for others that may want to pull your sources.

Journals with one author:
Note that the above shows: Last name – comma – first initial – period – second initial – period – year – period – title of article – period – name of journal – volume of journal – colon page numbers of the article within the volume – period.
Note: in the body of the paper you would cite = (Thiollay, 1992).

Journal with two authors:

Note: in the body of the paper you would cite = (Clayton and Robertson, 1955).

Journal with three or more authors: There is no et al. in the Literature Cited!

Note: in the body of the paper you would cite = (Kinner et al., 1988). Et al. means “and others” with al. being abbreviated (note the period after al.), with et is not.

Book citation:

Personal Communications: Information from lecture notes, verbal sources, letters and emails.

Note: in the body of the paper you would cite = (Horlings, 2002, pers. comm.)

Web Citation:

Note: the date is date of viewing of web page.

No Author: use Anonymous in the literature cited and the body of your paper.
• If you have more than one reference with no author, then you differential with the year based upon which Anonymous source was used first (2002a, 2002b, 2002c, etc.).
• I should not see more than two Anonymous citations!

Genetics Research Paper:
This paper must focus on some area of genetics that we may or may not have covered this semester. You can research: a specific chromosome, genetic technique, genetic disorder, a specific organism’s role in genetic research with discoveries, biotechnology as it relates to genetics, gene sequencing, specific researcher, cloning, stem cell research, etc. Clear what you would like to do with me first.

Evolution Research Paper:
This paper must focus on some areas of evolution that we may or may have covered this semester. I really do not want a paper on Creationism versus Evolution. You can research: historical accounts of research, speciation in a particular organism, extinction phenomena of a specific species or group, the evolution of a particular group, individuals (Wallace, Dawkins, Gould, Wilson, Grant, Lamarck, L. Leakey), coevolutionary relationships, Burgess Shale, polyploidy, adaptive radiation, etc

Botanical Life History Paper:
Select any eukaryotic organism that is typically covered under botany (algae, fungi, lower plants, higher plants). As you select your organism, be sure to select a specific species. Do not select a specific species and do a paper on its groups because you could not find enough information (this goes for genetics and evolution also). Select something that will be interesting to you.

Things that **must** be included:
- Taxonomic classification
- Morphology
- Physiology
- Reproduction (growth & development)
- Life cycles if they are unique
- Ecology
- Biogeography
- Special adaptations

Others that **may** be included if they are applicable to your organism:
- Medicinal uses
- Use by Indigenous groups
- Evolution
- Conservation
- Agricultural applications
- Genetic uses

**What will you be graded on?**
Scientific accuracy and style (do not forget to underline or italicize Genus species)
Format: Headings, using metric units, define technical terms, completeness
  - Typing errors: space before citation, two spaces after punctuation, space between numbers & units (2 m) and no period after the units unless it is at the end of the sentence, breaking up paragraphs, figures are called figures and referred to in the paper
  - Spelling & punctuation (Get help if you need it!)
  - Citations are not missing in the paper and done correctly (see above or other journals).
  - Following the format

**Organization and flow**
Completeness! Do not leave the reader hanging.
Your own thought
Avoiding direct quotes, anthropomorphism, generalizations

**Literature Cited:** at least 6 references, no more than 2 web citations, at least 3 scientific journals
No cutting and pasting from web sources!
No plagiarism!

**NOTE:**

Your paper is due at the beginning of class time. If you have forgotten, it is at 5:30 PM. If your paper is not on my desk by the time class begins, it is considered late!

For each day that your paper is turned in late, I will deduct 6 point. This includes the days that we do not meet (i.e. weekends and holidays also).