The Pros and Cons of Genetic Engineering

Genetic engineering is a very controversial topic. You will write a research paper in which you describe arguments in favor of altering the genetic makeup of organisms in this manner, or arguments which would oppose it. Limit your paper to discussing GMOs, and don't discuss cloning, or any reproductive technology, such as in vitro fertilization. You will discuss any possible negative consequences of this technology, a technology which many people fear, in a manner that will allow your reader to understand what the basis of this fear is. You may be "fair and balanced" in your discussion, or if you wish, take a position that is pro or con. But you must fairly present the argument of the other side, and if you are taking a position, then explain why you think the particular argument is not valid.

Any paper which is plagiarized will not be considered for extra credit. Plagiarism consists of quoting from a source without giving proper credit to the source, or using information from a source that you do not list. Any controversial statement or a fact which is not generally known must be cited. For example, if anybody thinks Golden Rice can cause a problem, you must tell me where you got that information from. Not all sources are equally good. A blog, for example, or Wikipedia is no good. Try to limit your sources to .gov, .edu, or .org if you are using internet sources. And be sure to reference the full URL so the information can be traced.

Citing your sources consists of two steps. The first step is to put a parenthesis after the text that needs a citation in which you indicate the author and date of publication for your source of information. This could be for either a direct quote that you use (and remember no more than 10% of your paper should be direct quotes), or for any fact that is not generally known, or a fact some people would dispute. The 2nd step would be to have a "Literature Cited" section at the end of the assignment in which you list your references in alphabetical order. If you have doubts about how to do this, refer to the addendum to this assignment called "Citation Styles in the Biological Sciences".

This paper can earn you up to 10 points on your report card grade, *if* it is well done. So, if your overall average is now 55 (check on Pupil Path if you don't know where you currently stand), you would get a 65 on your 3rd marking period report card. And remember that the 3rd marking period is cumulative, meaning that all the grades since September count. If your overall average is below that, such as for example a 45, you would get a 55 on the report card. The advantage of that grade is that it can be reversed in June to passing, <u>if you pass</u> the Living Environment Regents. A 45 or 50 grade cannot be reversed, so even if you pass the spring semester, you would still be failing for the fall semester. So if you do the extra credit properly, will possibly get credit for two semesters of Living Environment, rather than for just one. In fact, for anyone in the class, if your grade on the Regents is *higher* than I give you on the report card for the 3rd marking period in June, I will raise your report card to the grade you got on the Regents.

If you have any questions about this, please see me in class.

Citation Styles in the Biological Sciences

Always check with the instructor in your course, as each individual course may recommend different styles.

Endnote can automatically format your assignment in over 1000 different styles. The Library offers **a wiki** and **tutorials** throughout the year to help you learn the program.

In the text of your assignment

- References are referred to by author's name and year of publication e.g. (Smith 1998)
- If the reference has two authors list them both e.g. (White and Black 2001). If the reference has three or more authors list the first author followed by et al. e.g. (White et al. 2001). "et al." is an abbreviation of the Latin phrase et alia, meaning "and [the] others".
- If you are referring to two or more references at the same time, put them in chronological order separated by a comma. If two or more references were published in the same year put them in alphabetical order e.g. (Brown et al. 1997, Abbott et al. 2000, Carston et al. 2000)
- If you cite two or more references by the same author put them in chronological order e.g. (Brown 2003, 2004)

End of assignment: "Literature Cited" section

- List references alphabetically by author
- If you cite two or more references by the same author list these references in chronological order (oldest first)
- Titles of periodicals should be quoted in full and followed by volume numbers and page numbers
- Italics, bold, underlining and quotation marks are NOT used in this style (exception: italicize scientific names eg, *Homo sapiens)*
- Note that author name abbreviations do not include a full stop
- Chapters in books tend to be more complicated than other references. Note that the author of the chapter, the editor of the entire book, and page numbers of the chapter are included

Follow the styles below exactly for capitalization, punctuation, and order of elements

Journal Article
Archetti M (2000) The origin of autumn colors by coevolution. Journal of Theoretical Biology 205: 625–630

Demidchik V, Nichols C, Oliynyk M, Dark A, Glover BJ, Davies JM (2003) Is ATP a signaling agent in plants? Plant Physiology 133: 456–461

Book
Heldt HW (1997) Plant Biochemistry and Molecular Biology. Oxford University Press, New York

Second edition of a book
Bewley JD, Black M (1994) Seeds: Physiology of Development and Germination, Ed 2. Plenum Press, New York

Chapter in a book
Layne REC, Bailey CH, Hough LF (1996) Apricots. *In* J Janick, JN Moore, eds, Fruit Breeding: Tree and Tropical Fruits, Vol 2. John Wiley & Sons, New York, p 89

Copeland LO, McDonald MB (2001) Seed storage and deterioration. *In* Principles of Seed Science and Technology, Ed 4. Kluwer Academic Publishers, Boston, pp 192–230

Halmer P (2000) Commercial seed treatment technology. *In* M Black, JD Bewley, eds, Seed Technology and Its Biological Basis. Sheffield Academic Press, Sheffield, England, pp 257–286

Thesis
Craythorne, LN (2001) Use of rapid-cycling *Brassica rapa* for flower physiological and tissue culture investigations. MSc thesis. University of Canterbury, Christchurch

Patent
Kawchuk LM, Armstrong JD, Lynch DR, Knowles NR, inventors. December 7, 1999. Potatoes having improved quality characteristics and methods for their production. United States Patent Application No. 5998701.

Report
Ritchie SW, Hanaway JJ, Thompson HE, Benson GO (1997) How a Soybean Plant Develops. Special Report Number 53. Iowa State University, Ames, IA