

plagiarism and scientific writing

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C O N N E X I O N S

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Chapter 1

Recognizing and Avoiding Plagiarism¹

1.1 What is plagiarism?

Plagiarism is the use of someone else's ideas, results, equipment design, visuals, wording, or even sentence structure as if they were your own.

Plagiarism can be intentional:

- You use someone's ideas or results without citing the source;
- You copy something word for word without using quotation marks, even though you cite the source; or
- You use all or part of a visual without crediting the source.

Or it can be accidental:

- You don't realize what is considered plagiarism in the United States;
- You can't think of a better way to say it and so copy sentences, phrases, or even sentence structure from the original without using quotation marks;
- When you took notes, you didn't put exact wording in quotation marks and now you plagiarize without realizing it.

1.2 Why is it important to avoid plagiarism?

In the United States, plagiarism is considered academic misconduct, and you are expected to avoid plagiarism, either intentional or accidental.

Plagiarized work can result in a failing course grade, expulsion, rejection of a paper submitted for publication, denial of an advanced degree, or loss of job. It is increasingly serious now that the Internet has made plagiarism easier than ever before.

1.3 How can you avoid plagiarizing?

For each source you read, use a Template for Taking Notes such as the one on the Cain Project web site: <http://www.owl.net.rice.edu/~cainproj>². As you enter the information, proofread for completeness and accuracy. As you take notes, put quotation marks around any wording that you copy directly from the source so that later you can put it into your own words and won't accidentally plagiarize.

¹This content is available online at <<http://cnx.org/content/m15883/1.2/>>.

²<http://www.owl.net.rice.edu/~cainproj>

If you copy something word for word, put quotation marks around it and cite it: (Jones 2005). If you paraphrase by putting ideas into your own words, cite the source of the ideas: (Jones 2005). If you copy a Figure or Table, cite it at the end of the caption and inside the period: (Jones 2005). If you adapt a Figure or Table or use only part of it, cite it at the end of the caption: (Adapted from Jones 2005). Put the complete bibliographic reference for all citations in the Bibliography (or Works Cited).

Practice paraphrasing (putting someone else’s ideas into your own words) because it’s often difficult to do. Avoid the temptation of paraphrasing too many details. Focus on the main idea or evidence that you need to cite. Once you have determined what you need to paraphrase, reread the source and then cover it up. Write the main idea from memory and then check to verify that you haven’t used exact wording or sentence structure. Simply changing the verb tense or substituting one adverb for another, but leaving the sentence structure essentially the same, is still considered to be plagiarism.

If you simply cannot figure out a different way of saying it, use quotation marks to indicate that you are quoting exactly. [Because few writers in science or engineering use quotations, generally preferring paraphrases, paraphrasing is a skill you must learn in those fields. In contrast, writers in the humanities often use quotations to illustrate key points, but they also paraphrase when exact wording is not essential.]

Always cite your source, whether for text, visuals, or ideas. If you cannot remember the source, you can’t use the information. Put citations in as you write your first draft so that you don’t have to go back later when identifying the source may be difficult.

In your text, make clear what the source is. Generally, it is a good idea to identify an author by name rather than by referring to a number in your bibliography, though this practice varies somewhat by field or by journal. In any case, try not use a reference number as a part of speech. Do not, for example, write that “[10] gives more compelling evidence than [98] provides.” Think of how time consuming it is for a reader to have to keep flipping to the bibliography to see who has said what. It would be preferable to write “Johnson (10) gives more compelling evidence than Dickerson (98) provides.” And then move to the evidence, clearly identifying the references as you discuss the evidence each author gives. [Whether you use square brackets or parentheses depends on the field or journal.]

1.4 Examples of citation within the text

CONFUSING: [10] and [15] were the next to apply this algorithm to new genetic sequences.

CONFUSING: The first big improvement came in the work of [10].

CLEAR: Koninsky et al. and Rebert et al. were the next to apply this algorithm to new genetic sequences (10, 15).

CLEAR: Koninsky et al. (10) and Rebert et al. (15) were the next to apply this algorithm to new genetic sequences.

CLEAR: Smith and Wesson (2001) were the next to apply this algorithm to new genetic sequences.

CLEAR: Research teams then began to apply this algorithm to new genetic sequences (Smith and Wesson 2001).

CLEAR: Research teams then began to apply this algorithm to new genetic sequences. (See, for example, Smith and Wesson 2001 and Rebert et al. 2004.)

RIGHT, but LESS CLEAR: Research teams then began to apply this algorithm to new genetic sequences. (See, e.g., 10, 15, and 22.)

For suggestions on how to avoid plagiarism and cite information, see *Diana Hacker’s The Bedford Handbook*, 7th ed. (2006), pp. 572-579; 698-790. She includes extensive examples of APA and Chicago style guides. I suggest, too, that you check the Web site for the book: www.dianahacker.com/bedhandbook³ for further information. Or go to other Web Site sources: Check Google for the *APA Citation Style Guide* or the *Chicago Manual of Style Citation Guide*.

³<http://www.dianahacker.com/bedhandbook>

1.5 Examples of Plagiarism and Paraphrasing

The original text:

“The new Internet economy has brought about the development of competing search engine companies, each with its own proprietary software. Sites are collected and updated differently. After a search is conducted, one search engine provides exactly what’s required within the first ten hits whereas another is useless. Frequently there is tremendous overlap, although no two search engines are exactly alike. Since the outcome varies from search engine to search engine, researchers often find it necessary to use several engines for the same question for either the best or more comprehensive results.”

Burnett, Rebecca E. (2001). *Technical Communication (5th ed.)*. Fort Worth: Harcourt, Inc., p. 199.

Read the following examples and decide if each is an example of acceptable paraphrasing or of plagiarism.

1. Burnett points out that competing search engine companies have proprietary software that collects and updates sites differently. As a result, one will provide what you want within the first ten hits, while another is useless. That means that researchers will frequently need to use several engines to obtain the best or more comprehensive answers (2001).
2. Multiple search engines on the Internet have arisen, each with unique strengths and weaknesses. These differences derive from each engine’s respective method of analyzing and classifying information on the Internet. As a direct result of these differences, more exhaustive search results are often obtained through the use of several engines (Burnett 2001).
3. When researching a specific subject on the Internet, the use of multiple search engines is essential for a thorough search because each search engine utilizes different algorithms.
4. Rebecca Burnett suggests that we use several search engines because sometimes there is tremendous overlap in results and the outcome differs from search engine to search engine (2001).

1.5.1 Answers to the above 4 responses, which were all written by students who thought they were paraphrasing. Only one succeeded.

1. Even though the author’s name and date are cited, **this is clearly plagiarism**. Changing the verb from passive to active (“are collected and updated differently” becomes “collects and updates differently”) is not sufficient change. Substituting “while” for “whereas” in “within the first ten hits . . . another is useless” again is not sufficient change. Some exact wording is retained; sentence structure is identical. The same objections hold for “to use several engines . . . The best or more comprehensive answers.” Some students have tried to argue that the information in the original paragraph is now common knowledge and that, as a result, some use of the exact wording is inevitable. I agree, to a certain extent. I wouldn’t be surprised if “proprietary software” occurred to many writers as a phrase. But example #1 relies far too heavily on simple substitution while retaining sentence structure and whole blocks of words.
2. This is a **fine paraphrase**. The source is cited and the only duplicate wording occurs in “several engines,” a phrase that I would agree is in common use and therefore is **not plagiarism**.
3. This is an acceptable paraphrase, but the source is not cited. **So it is plagiarism!**
4. Because this is so short, you might be tempted to call it a paraphrase. But “tremendous overlap” is identical, and “the outcome differs from search engine to search engine” changes only “varies” to “differs” and leaves the rest of the wording and structure the same. **It is plagiarism.**

1.6 Frequently asked questions

1.6.1 When don't I have to cite the source for information?

You don't have to cite basic knowledge that is found in two or more textbooks. But neither can you use it word for word—you must paraphrase. The exception would be something like a common formula or algorithm; those you would have to use as they appear in the source.

1.6.2 What if I'm using a common method that's difficult to reword? Do I have to cite the source?

If you use it word for word rather than paraphrasing it, you must cite the source. I know of an Assistant Professor who was denied tenure for taking a method word for word from a published paper.

1.6.3 How do I cite a source that I read about in a different article, a review article, for example?

You will have to cite the source as well as the review article. It's always best to get a copy of the original article instead of relying on what someone else says about it. Reviewers are not equally good, and even a good reviewer may be focusing on different aspects of the article than you need. The exception would be an article originally published in a language you can't read or an article that is no longer available. In such cases you must make clear that it is the reviewer's interpretation that you are citing.

1.6.4 What do I put in the Bibliography?

Everything you cited and nothing that you didn't cite.

1.6.5 What should I do if I have an important quotation or a really relevant Figure, but I can't remember where I found them?

See if you can track it down via the Internet. If you can't find it, you can't use it.

1.6.6 Can I cite my own previously published paper or my thesis in a paper I'm submitting for publication?

Of course! Keep in mind, though, that every author listed on a published paper has equal copyright ownership and can also cite the paper. Being first author does not give you sole ownership. If you were first author and are now using essentially the entire paper as a chapter in your Master's or PhD thesis, make clear at the outset of the chapter that it comes largely from your paper (cite it clearly!). Then later in the chapter make it absolutely clear that the chapter is based on your paper. If you use any figures or tables from the published paper, cite those as well. If you are using your thesis as the basis for a paper, make that clear, too. You can cite it as an unpublished thesis or dissertation.

1.6.7 When do I have to get permission to quote or paraphrase something?

In the academic world, this is sometimes a gray area. You usually don't have to get permission for use if you are writing a paper for a class, a Master's thesis, or a PhD dissertation, though you must cite the source. And because being cited helps faculty receive tenure or academic awards, most researchers are delighted to be cited in academic journals. Journals may have guidelines, though, so be sure to check. The issue becomes less clear if your paper is chosen to be published in a Proceedings; you may well have to get permission for use there. Check with the editors. And if you publish a book, you will almost certainly need to get permission from the author. Keep a paper copy of your request and a paper copy of the reply. If your paper

comes out of funded research, you may need permission to publish what might otherwise be considered the intellectual property of the funding agency.

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Chapter 2

Copyright and Electronic Publishing: Citation¹

2.1 Basic Information

- The copyright protections associated with print also govern the use of audio, video, images, and text on the World Wide Web (WWW).
- If a document is on the WWW, that DOES NOT mean that it is in the public domain and may be used with no restrictions.
- A document on the WWW may be copyrighted even if it does not explicitly state that it is copyrighted. Assume that a work is copyrighted unless the site explicitly authorizes use.
- The same copyright protections exist for the author of a work regardless of whether the work is in a database, CD, discussion board, blog, or web page.
- Cite a visual used in the text at the end of the Figure or Table caption: (*Ozymandias 2005*) just as you would cite text in a paragraph. If you use only part of a visual or change it, cite it as (*Adapted from Ozymandias 2005*).
- Put all electronic citations in your Bibliography or Works Cited.

2.2 Tips on Using Internet Resources

- ALWAYS credit the source of your information.
- Check to see if the author provides information on how his/her work (e.g., video, audio, graphic, icon, web page) may be used. Make sure to follow the guidelines, if they exist.
- If possible, ask the owner of the copyright for permission to use the work. Because all authors of a single document have equal copyright protection, it is necessary to get permission from only one. The corresponding author of a paper should be your first choice. Keep a paper copy of your request for permission and of the permission received.
- If you use one of your own published articles in your thesis, you don't need permission from the other authors, all of whom have equal copyright rights. Clearly state the source, however, and recognize the contributions of the other authors. Most journals will give you permission to use your published paper in your thesis, but check the contract!
- If you post a chapter from your unfinished thesis or a paper you plan to submit for publication, it is considered published and copyrighted by the act of placing it on the Internet. A journal then cannot accept it for publication because it has already been published. To avoid this copyright disaster, clearly

¹This content is available online at <<http://cnx.org/content/m15914/1.3/>>.

label the posted material as DRAFT and make certain that it differs from what you later submit as finished thesis or paper for publication.

2.3 Guidelines for Citing Electronic Media

Check with the journal, your advisor, or your professor to determine what style is required. The APA style guide and the Chicago Manual of Style are commonly used, but some journals have their own style sheets. If you are submitting for publication outside the U.S., style expectations will differ. Preferred style may differ from field to field, as well. If you have kept accurate and complete notes on what you read, you'll be able to meet any requirements.

2.3.1 What to Include (if available)

- Name of the author, editor, compiler, or translator of the document or graphic. Last name, First initial. (Make this complete enough so that you can do an electronic search for it. Sometimes last name and first initial are not sufficient, as in “Jones, J.”)
- Date of document’s publication or last update on the Web site. If the publication date is not known, use n.d. to indicate “no date” (n.d.).
- Title of the document, graphic, or the Web Site.
- Publication information—the name of the main Web Site where the document or graphic is posted.
- Page number range or total number of pages or other sections, if they are numbered.
- Date accessed and location of the material on that date: Month, day, year; URL.
- Keep a paper copy to prove the date accessed to protect yourself if it disappears from the Web.
- If you download an article published as print, you may cite it as a printed source. If you cite an article in an electronic journal, you must cite it as a Web source.

2.4 Examples of Citation in a Bibliography or Works Cited

Notice that the same basic information is included in the three entries for journal articles, although the styles differ. Choose the style appropriate for what you are writing, and then be consistent within the document. You must follow a style guide.

If the Bibliography is set up numerically rather than alphabetically, as would happen when references are numbered consecutively within a text, the entries would be numbered and the authors’ names would all be first name first, as in [1] *Christopher Beattie, Mark Embree, etc.*

2.4.1 Print sources

Beattie, Christopher, Mark Embree, and D. C. Sorensen. Convergence of Polynomial Restart Krylov Methods for Eigenvalue Computation. *SIAM Rev.*, 47 (2005), pp. 492-515. [Journal style]

Chen, J. Y., A. Kutana, C. P. Collier, and K.P. Giapis. Electrowetting in Carbon Nanotubes. *Science* 310, 1480-1483 (2005). [Journal style]

Hacker, Diana. (2006). *The Bedford Handbook*. Boston and New York: Bedford/St. Martin’s. [APA style]

Nicolo, Micah J., Gerald R. Dickens, Christopher J. Hollis, and James C. Zachos. “Multiple early Eocene hyperthermals: Their sedimentary expression on the New Zealand continental margin and in the deep sea,” *Geology* 35, no. 8 (2007): 699-702. [Chicago style]

2.4.2 Electronic sources

Herbst, Roy S., M.D., PhD., and Scott M. Lippman, M.D. Molecular Signatures of Lung Cancer—Toward Personalized Therapy. *New England Journal of Medicine* 356, no. 1 (January 4, 2007): 76-78. Retrieved

April 18, 2007 from <http://www.nejm.org>²

Ortiz-Barrientos, D. and M. A. F. Noor. Evidence for a One-Allele Assortative Mating Locus." *Science* 310, no. 5753 (2005): 1467. Retrieved September 1, 2007 from <http://www.sciencemag.org>³

Provenzo, Eugene F. Jr. "Time Exposure." *Educational Studies* 34, no. 2 (2003): 266-67. Retrieved September 11, 2007 from <http://search.epnet.com>⁴

2.4.3 Additional Resources

See <http://www.bitlaw.com>⁵ (Gives information about copyright laws.)

Visit <http://www.apastyle.org/elecsource.html#72>⁶ (Extensive examples of how to cite journal articles in APA format, the form used by many fields.)

²<http://www.nejm.org/>

³<http://www.sciencemag.org/>

⁴<http://search.epnet.com/>

⁵<http://www.bitlaw.com/>

⁶<http://www.apastyle.org/elecsource.html#72>

Chapter 3

Discipline- or Field-Specific Graduate Course Communication Resources¹

Although graduate students may have studied communication in their undergraduate programs, their advanced courses may introduce types of reports, such as literature reviews or presentations of published articles that are uncommon in undergraduate courses. The materials listed below offer brief but salient advice on how to succeed with such assignments.

- Advanced Biomechanics Teaching Project (Bioengineering)
- Communicating Ethically
- Copyright and Electronic Publishing: Citation
- Demonstrating Your Knowledge and Contributions to a Profession²
- How to Read a Scientific Article (Chapter 5)
- How to Read a Scientific Article with Civil Engineering Example (Civil Engineering) (Chapter 6)
- Presenting a Technology Analysis (Computer Science)³
- Questions That Matter in an Internship Report⁴
- Recognizing and Avoiding Plagiarism (Chapter 1)
- Sample Executive Summary for an Internship Report to Managers⁵
- Seven Ways to Motivate the Audience⁶
- Template for Taking Notes on Research Articles: Easy access for later use⁷

You may also wish to consult more general resources on communication:

- Group or Team Communication Resources⁸
- Speaking and Oral Presentations Resources⁹
- Writing Resources¹⁰
- Visual Design, Poster, and PowerPoint Resources¹¹

¹This content is available online at <<http://cnx.org/content/m17246/1.5/>>.

²"Demonstrating Your Knowledge and Contributions to a Profession: The Management Report and the Technical Report for the Professional Science Master's Degree" <<http://cnx.org/content/m16582/latest/>>

³"Presenting a Technology Analysis: The Context and Your Delivery" <<http://cnx.org/content/m17046/latest/>>

⁴"Questions That Matter in an Internship Report" <<http://cnx.org/content/m16942/latest/>>

⁵"Sample Executive Summary for an Internship Report to Managers" <<http://cnx.org/content/m16180/latest/>>

⁶"Seven Ways to Motivate the Audience" <<http://cnx.org/content/m16190/latest/>>

⁷"Template for Taking Notes on Research Articles: Easy access for later use" <<http://cnx.org/content/m15913/latest/>>

⁸"Group or Team Communication Resources" <<http://cnx.org/content/m17248/latest/>>

⁹"Speaking and Oral Presentations Resources" <<http://cnx.org/content/m17252/latest/>>

¹⁰"Writing Resources" <<http://cnx.org/content/m17253/latest/>>

¹¹"Visual Design, Poster, and PowerPoint Resources" <<http://cnx.org/content/m17250/latest/>>

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