Module 1: Plagiarism Explained

Intellectual Property and Plagiarism Defined

Intellectual property refers to any creation, discovery, or idea. Individuals have ownership of their intellectual property, including literary, scientific, and artistic works. Specifically, pictures, charts, graphs, research results, and any original ideas expressed through words in an article, book, or unpublished paper are all examples of intellectual property.
Plagiarism occurs when you use another person's intellectual property (i.e., words, ideas, research findings, graphs) without giving the original author credit through appropriate citation.

From the Federal Policy on Research Misconduct put forth by the Office of Science and Technology Policy (2002): **"Plagiarism is the appropriation of another person's ideas processes, results, or words without giving proper credit."** "Person" can refer to an organization as well.

"ASME (American Society of Mechanical Engineers) defines plagiarism as the use or presentation of the ideas or words of another person from an existing source without appropriate acknowledgment to that source. ASME views any similar misappropriation of intellectual property, which may include data or interpretation, as plagiarism. [This definition is based on one used by the National Academy of Science, National Academy of Engineering, and the Institute of Medicine.]" Information taken from the ASME web site: http://www.asme.org/Publications/ConfProceedings/Author/Ethics.cfm retrieved August 25, 2009.

According to David Kramer, of the University of Wisconsin, Platteville, [Kramer, David (2008) Proceedings of the 2008 ASEE North Midwest Sectional Conference (http://www.ndsu.nodak.edu/asee/conferences/2008/papers/Kraemer.pdf)]:

> One form of plagiarism seen often in engineering pro-grams at American universities is a sort of local plagiarism, where students borrow content from fellow students who have taken the same courses in prior semesters. Another common form is seen when students obtain solutions manuals to textbooks, which are more readily available than in previous decades since they may be purchased over the internet; the main effect of this is a lost learning opportunity. Local plagiarism becomes even more significant with laboratory reports, which often carry more weight in the course in regard to education and grading.

From the University of Utah Student Code (Code of Rights and Responsibilities):

> "Academic misconduct" includes, but is not limited to, cheating, misrepresenting one's work, inappropriately collaborating, plagiarism, and fabrication or falsification of information, as defined further below. It also includes facilitating academic misconduct by intentionally helping or attempting to help another to commit an act of academic misconduct.
>
> "Cheating" involves the unauthorized possession or use of information, materials, notes,

study aids, or other devices in any academic exercise, or the unauthorized communication with another person during such an exercise. Common examples of cheating include, but are not limited to, copying from another student's examination, submitting work for an in-class exam that has been prepared in advance, violating rules governing the administration of exams, having another person take an exam, altering one's work after the work has been returned and before resubmitting it, or violating any rules to academic conduct of a course or program.

Misrepresenting one's work includes, but is not limited to, representing material prepared by another as one's own work, or submitting the same work in more than once course without prior permission of both faculty members.

"Plagiarism" means the **unacknowledged use or incorporation of any other person's work** in, or as a basis for, one's own work offered for academic consideration or credit or for public presentation. Even unintentional falsification or any other unintentional misrepresentation of one's work is considered to be a form of academic misconduct unless reasonable due diligence was conducted to affirm originality of work and data as one's own. Plagiarism includes, but is not limited to, **representing as one's own, without attribution, any other individuals' words, phrasing, ideas, sequences of ideas, information, or any other mode or content of expression.**

"Fabrication" or "falsification" includes reporting experiments or measurements or statistical analyses never performed; manipulating or altering data or other manifestations of research to achieve a desired result; falsifying or misrepresenting background information; or selective reporting, including the deliberate suppression of conflicting or unwanted data. As long as due diligence was exercised to validate data, it does not include honest error or honest differences in interpretations or judgments of data and/or results. Due diligence to substantiate originality of work can be demonstrated by documenting that appropriate databases (such as literature records and plagiarism detection software) were used to search for similar work.

Prevalence of Plagiarism

Decoo (2002) reports that the Office of the Inspector General of the National Science Foundation receives reports of 30-80 cases per year, with the Office of Research Integrity (ORI) reporting 35-40 cases per year in medical and biomedical research. In the event that misconduct has occurred, the ORI publishes the name of the accused, the facts of the case, and the sanction on-line (p. 15).

Swazey, Anderson, and Louis (1993) as cited in Decoo (2002), surveyed 4,000 researchers about the prevalence of misconduct. Responses indicated that **between 13 and 33 percent of graduate students exhibited behaviors consistent with academic misconduct** (p. 15).

Module 2: Consequences of Plagiarism

Plagiarism damages the reputation of the University. Plagiarism undermines your credibility as a trustworthy researcher, and it can result in the disciplinary actions described below.

From the University of Utah Student Code (Code of Rights and Responsibilities):

> "Academic sanction" means a sanction imposed on a student for engaging in academic or professional misconduct. It may include, but is not limited to, requiring a student to retake an exam(s) or rewrite a paper(s), a grade reduction, a failing grade, probation, suspension or dismissal from a program or the University, or revocation of a student's degree or certificate. It may also include community service, a written reprimand, and/or a written statement of misconduct that can be put into an appropriate record maintained for purposes of the profession or discipline for which the student is preparing.

Students cannot take the qualifying exam without reading this module. Not reading this document and signing to verify your understanding will constitute a failure of your exam.

If the PhD qualifying exam committee determines that you have plagiarized,

- You will fail the entire qualifying exam
- A letter will be placed in your student file

Module 3: Types of Plagiarism

Copy and paste plagiarism – This type of plagiarism consists of copying text from another source without acknowledgement. This kind of plagiarism is sometimes the result taking notes from the literature without also noting the source. If enough time passes, you might actually forget that the words were not yours, but that's no excuse – it represents inadequate due diligence to protect the intellectual property of others. To avoid copy & paste plagiarism, use quotation marks to indicate the material is a direct quote and include a reference to the source.

Linguistic manipulation of source material – This type of plagiarism includes replacing words with synonyms, shortening sentences, combining sentences, splitting sentences, depersonalizing the original, and/or changing the order of sentences and paragraphs (Decoo, 2002). Despite these minor modifications to the text, you still need to include quotation marks and a reference to the source. **Linguistic manipulation is NOT paraphrasing.** Paraphrasing is rewriting an author's main points and ideas in your own words, while still conveying the original meaning. Because paraphrasing is the borrowing of another person's *ideas*, you still need a reference, but no direct quotes. If a paraphrase is included but not referenced, this is commonly referred to as idea plagiarism.

Use of visual elements – Any tables, figures, charts, or images that are lifted from another source must be cited appropriately. It is not acceptable to copy and paste a visual image and present it as one's own.

Self-Plagiarism (Copying from oneself) – Using one's own work without rewriting it is considered plagiarism because it is being presented as *original* work. IEEE has a policy on self-plagiarism: http://www.comsoc.org/dl/jrnal/transcom/Self_Plagiarism.pdf

What should you cite?	What shouldn't you cite?
Direct quotes Paraphrases Summaries Ideas	Common knowledge (that which is known and accepted by people in your field)

If you believe something is common knowledge, then you should be prepared to offer numerous substantiating citations to the literature.

Module 4: Plagiarism Case Studies

Self-Plagiarism

Plague of Self-Plagiarism, The ASEE Prism, Oct 2006 by Wankat, Phillip, Oreovicz, Frank

Ohio University

An Ohio University graduate student uncovered more than 30 cases of plagiarism in graduate students' theses. Follow the link below for detailed information about this case.

http://chronicle.com/article/The-Plagiarism-Hunter/5109

Three of the engineering graduate students who were accused of plagiarism received rulings. Two were required to re-write their master's thesis, while one was exonerated. 34 cases are still left to be determined. Follow the links below for detailed information.

http://chronicle.com/article/Ohio-U-Panel-Rules-in/37729/

http://www.dispatch.com/live/contentbe/dispatch/2006/10/21/20061021-B1-01.html

Sample Paper

Note: "Student-author" passages were taken with permission from T.A. Ameel, Average Effects of Forced Convection Over a Flat Plate with an Unheated Starting Length, *International Communications in Heat and Mass Transfer*, Vol. 24, No. 8, pp. 1113-1120, 1997. Parts of the article were altered in order to demonstrate various forms of plagiarism. The final version, "Proper citation/source usage" uses the selection verbatim with no alterations from the original.

Source text: W.M. Kays and M.E. Crawford, *Convective Heat and Mass Transfer*, 3rd. ed., McGraw Hill, New York, 163 (1993).

Again, since we already know $\xi(\eta)$, we can readily evaluate the integrals for any particular Prandtl number.

The results of such calculations, based in part on the calculations of Elzy and Sisson, [23] are given in Table 10-1.

Over the Prandtl number range 0.5-15 these results are very well approximated by the equation

$$Nu_x = 0.332\ \mathrm{Pr}^{\frac{1}{3}}\ \mathrm{Re}_x^{\frac{1}{2}} \qquad (10\text{-}10)$$

We could have anticipated the result for Pr = 1 from Eq. (10-3).

Copy-paste plagiarism

Laminar flow over a fully-heated flat plate can be expressed in an equation with the local Nusselt number Nu_x as a function of the local Reynolds number Re_x and Prandtl number Pr. Over the Prandtl number range 0.5-15 these results are very well approximated by the equation

$$Nu_x = 0.332\, Pr^{\frac{1}{3}}\, Re_x^{\frac{1}{2}} \qquad (10\text{-}10)$$

We could have anticipated the result for Pr = 1 from Eq. (10-3).

Equations for turbulent flow and for the isoflux boundary condition have a similar form. In general, all of these equations may be expressed as

$$Nu_x = \frac{hx}{k} = C\, Pr^m\, Re_x^{n/(n+1)} \qquad (2)$$

where h is the local heat transfer coefficient, k is the fluid thermal conductivity, and typical values of the constants C, m, and n are given in Table 1 for the various conditions.

TABLE 1
Constants for use with Eq. 1

Case	Flow Condition	Thermal Boundary Condition	C	n	m
1	laminar	isothermal	0.332	1	1/3
2	laminar	isoflux	0.453	1	1/3
3	turbulent	isothermal	0.0287	4	3/5
4	turbulent	isoflux	0.030	4	3/5

Discussion

The blue passage was taken directly from the source material - including equation numbering, which is out of synch with the rest of the paper. There are no quotation marks, author references, or footnotes to indicate where the blue words came from. By not using these distinctions, the student-author claims that he thought of these words himself, organized them in this order himself, and came up with the equation himself. This is classic plagiarism, and whether the student-author simply forgot the citation is irrelevant.

Linguistic manipulation

Laminar flow over a fully-heated flat plate can be expressed in an equation with the local Nusselt number Nu_x as a function of the local Reynolds number Re_x and Prandtl number Pr. Within the range of 0.5-15 for the Prandtl number, this equation approximates the results very well

$$Nu_x = 0.332\,\mathrm{Pr}^{\frac{1}{3}}\,\mathrm{Re}_x^{\frac{1}{2}} \tag{1}$$

Equations for turbulent flow and for the isoflux boundary condition have a similar form. In general, all of these equations may be expressed as

$$Nu_x = \frac{hx}{k} = C\,\mathrm{Pr}^m\,\mathrm{Re}_x^{n/(n+1)} \tag{2}$$

where *h* is the local heat transfer coefficient, *k* is the fluid thermal conductivity, and typical values of the constants *C*, *m*, and *n* are given in Table 1 for the various conditions.

TABLE 1
Constants for use with Eq. 1

Case	Flow Condition	Thermal Boundary Condition	C	n	m
1	laminar	isothermal	0.332	1	1/3
2	laminar	isoflux	0.453	1	1/3
3	turbulent	isothermal	0.0287	4	3/5
4	turbulent	isoflux	0.030	4	3/5

Discussion

The blue text is no longer word-for-word copied from the source and the equation numbering has been fixed. However, this version still constitutes plagiarism. Some minor wording was changed, but certain word choices and phrases (such as the results being approximated "very well") were still copied from the source and thus should have quotation marks around them. This version does not constitute paraphrasing since the phrasing of the original is still present. Additionally – and more importantly – the idea of approximating Elzy and Sisson's results for that range with that particular equation did not originate with the student-author; it originally came from Kays and Crawford's textbook. Credit (in the form of a citation) is due and it is missing. This is plagiarism.

Recognition without proper citation

Laminar flow over a fully-heated flat plate can be expressed in an equation with the local Nusselt number Nu_x as a function of the local Reynolds number Re_x and Prandtl number *Pr*. Kays and Crawford show that "over the Prandtl number range 0.5-15 these results are very well approximated" by the equation

$$Nu_x = 0.332\,\mathrm{Pr}^{\frac{1}{3}}\,\mathrm{Re}_x^{\frac{1}{2}} \tag{1}$$

Equations for turbulent flow and for the isoflux boundary condition have a similar form. In general, all of these equations may be expressed as

$$Nu_x = \frac{hx}{k} = C\ \mathrm{Pr}^m\ \mathrm{Re}_x^{n/(n+1)} \quad (2)$$

where *h* is the local heat transfer coefficient, *k* is the fluid thermal conductivity, and typical values of the constants *C*, *m*, and *n* are given in Table 1 for the various conditions.

TABLE 1
Constants for use with Eq. 1

Case	Flow Condition	Thermal Boundary Condition	C	n	m
1	laminar	isothermal	0.332	1	1/3
2	laminar	isoflux	0.453	1	1/3
3	turbulent	isothermal	0.0287	4	3/5
4	turbulent	isoflux	0.030	4	3/5

Discussion

This version is getting better but still is incorrect. The student-author refers to the original authors and uses quotation marks around the original wording to show that those words belong to Kays and Crawford, which is correct. **However, simply naming the authors is not a proper citation.** This student-author needed to include a footnote directing the reader to which of Kays and Crawford's many works this particular idea was taken from.

Additionally, the student-author leaves the phrase "by the equation" outside of the quotation marks, even though those words were included in the original text. Remember, anything you write without quotation marks means it is *your* writing. Although the phrase "by the equation" is very common, whatever verbatim text you use of Kays and Crawford's sentence has to be in quotation marks, even if the words are commonplace.

Proper citation/source usage

For a fully-heated flat plate in laminar flow, the local Nusselt number Nu_x is a function of the local Reynolds number Re_x and Prandtl number *Pr* and is given by [7]

$$Nu_x = 0.332\ \mathrm{Pr}^{\frac{1}{3}}\ \mathrm{Re}_x^{\frac{1}{2}} \quad (1)$$

Equations for turbulent flow and for the isoflux boundary condition have a similar form. In general, all of these equations may be expressed as

$$Nu_x = \frac{hx}{k} = C\ \mathrm{Pr}^m\ \mathrm{Re}_x^{n/(n+1)} \quad (2)$$

where *h* is the local heat transfer coefficient, *k* is the fluid thermal conductivity, and typical values [7] of the constants *C*, *m*, and *n* are given in Table 1 for the various conditions. Note that

for Case 3, other references [1] list *C* as 0.0296 and *m* as 1/3. The choice of which set of these constants to use has no bearing on the following method used to determine the average heat transfer coefficients.

TABLE 1
Constants for use with Eq. 1 [7]

Case	Flow Condition	Thermal Boundary Condition	C	n	m
1	laminar	isothermal	0.332	1	1/3
2	laminar	isoflux	0.453	1	1/3
3	turbulent	isothermal	0.0287	4	3/5
4	turbulent	isoflux	0.030	4	3/5

References

1. F.P, Incropera and D.P. DeWitt, *Fundamentals of Heat and Mass Transfer*, John Wiley & Sons, New York, 399 (1990).

2. F.M. White, *Heat and Mass Transfer*, Addison-Wesley Publishing Co., New York, 328 (1988).

3. N.V. Suryanarayana, *Engineering Heat Transfer*, West Publishing Co., St. Paul, MN, 314 (1995).

4. S. Kakac and Y. Yener, *Convective Heat Transfer*, CRC Press, Boca Raton, FL, 95 (1995).

5. W.C. Thomas, *Mechanical Engineering News*, ASEE, 9, 19 (1977).

6. R.R. Scott and M. Najafi, *Proceedings of the National Heat Transfer Conference*, ASME, New York, (1995).

7. W.M. Kays and M.E. Crawford, *Convective Heat and Mass Transfer*, 3rd. ed., McGraw Hill, New York, 163 (1993).

Discussion

This version is the best. The student-author uses footnote [7] to reference Kays and Crawford's work. This citation is used *every time* he refers to their work, including the table he put together. By doing so, he acknowledges the foundation upon which his work is built. He then includes a properly formatted reference list so that the reader can look up page 163 of Kays and Crawford's book and find that information.

The best improvement in this version is in the content. The student-author has learned Kays and Crawford's information and can now display it in his own words. He doesn't need to rely on verbatim text because he is supplying his own words and original ideas.

This student-author correctly balances the need to incorporate reliable background information with the need to supply fresh and original ideas.

Module 5: Appropriate Citation Styles

Professional societies and journals usually have specific guidelines for citations. Some examples of citation styles include MLA (Modern Language Association), APA (American Psychological Association), and Chicago Style, which includes the concise author-date system characteristic of the physical and natural sciences. IEEE and ASME use a notation style where the reference is listed as a number in brackets within the text, with the full citation (and its corresponding number) included at the end of the text.

While bracket notation is common in engineering, it is important to verify the specific citation style that should be used when submitting articles for publication, as journals often use different styles, even within the same discipline.

This is an example of IEEE's bracket notation in text:

Decoo explores the culture of academic misconduct on college campuses [1].

The complete reference is then included in a reference list or bibliography at the end of the document like this:

[1] W. Decoo, *Crisis on Campus: Confronting academic misconduct.* Cambridge, MA: The MIT Press, 2002.

For more information on IEEE and ASME style including how to cite journal articles, conference presentations, web sites, and personal communication, consult the following web pages:

http://www.ieee.org/portal/cms_docs_iportals/iportals/publications/authors/transjnl/auinfo07.pdf

http://journaltool.asme.org/Help/AuthorHelp/WebHelp/JournalsHelp.htm#Guidelines/Getting_Started.htm

Referring to the *unpublished* work of others can usually be done by a citation of the form

[2] Brown, Chris (2009) unpublished class report and presentation.

However, such a citation should be done with permission from the originator to give him/her the option to be the first to publish the work.

Module 6: How to Avoid Plagiarism

Keep the following tips in mind to avoid intentional and unintentional plagiarism.

- Know what constitutes plagiarism. Any borrowing, great or small, without proper citations is plagiarism.

- Don't ever use the cut-and-paste functions when writing. This is a dangerous habit that can lead to accidental plagiarism.

- If you want to use the exact words from a source, put double quotes around all the copied material and cite the source, including page numbers, at the end of the material.

- Don't leave writing your citations to the last minute. You're likely to forget what was borrowed and what was yours.

- Use a citation every time you use or mention material from another source, even if this means having the same citation at the end of several sentences in the same paragraph.

- Don't have your source material right in front of you when you go to write. You'll be more likely to accidentally type verbatim sentences if you're looking at the source when you write.

- Proofread your paper thoroughly and more than once. If you find a sentence or paragraph and you're not sure if you wrote it or plagiarized it, investigate it!

- Run your paper through a plagiarism service, such as turnitin.com, for assistance with proofreading and plagiarism detection.

- Give your paper to your advisor and specifically ask him/her to help you make sure you haven't plagiarized. You can also work with tutors at the Writing Center in the library.

- Don't assume that just having good intentions is enough. Avoiding plagiarism requires active thought and effort.

Module 7: Resources for More Information

www.plagiarism.org

http://www.uwplatt.edu/library/reference/plagiarism.html

http://www.valdosta.edu/~cbarnbau/personal/teaching_MISC/plagiarism.htm

http://www.prism-magazine.org/oct06/tt_03.cfm (self-plagiarism)

http://www.plagiarismadvice.org/wp/index.php

http://www.regulations.utah.edu/academics/6-400.html (Link to University of Utah's Student Code)

http://www.academicintegrity.org/index.php (Center for Academic Integrity)

http://facpub.stjohns.edu/~roigm/plagiarism/ (A Guide to Ethical Writing)

http://cirtlcafe.net/node/308 (a resource for international students)

http://dspace.cusat.ac.in/dspace/bitstream/123456789/1602/1/Plagiarism_report_JAYA.pdf (plagiarism software for master's thesis – a great resource for due diligence)

As a student at the University of Utah, you have tools at your disposal to check your own work for accidental plagiarism. The Technology Assisted Curriculum Center (TACC) web site has pdf versions of the student guide for using Turnitin.com via UOnline Blackboard, as well as instructions for using the Turnitin web site. The link for accessing the TACC web site and student instructions is http://www.tacc.utah.edu/instructor_resources/plagiarism.html.