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Principles of Form

Learning Objectives

By the end of this module, you will understand the importance of form. In addition, you will be able to recognize and deal with problems of form that involve the following:

➢ White Space
➢ Print Quality
➢ Conventions of Form

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The Importance of Form

➢ Studies indicate the difference in grades between a well-formatted assignment and a poorly formatted assignment is 10-15%. **Do you want an A or a B?**

➢ The format is the first thing readers see. Readers make judgements based on what they see (**form is persuasive**).

- Do you attend to details?
- Are you organized?
- Are you interested in the topic?
- Do you respect the reader?

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The Nature of Form

➢ Generally, form is conceived of as a container into which you can place any kind of content.

➢ This is a lousy metaphor. Consider, for example, why you don't drink apple juice out of a bedpan.

➢ A better metaphor is that of a plant. Form grows organically through time to support the content.

The Nature of Form

➢ Would you write a love letter using a business letter format?

➢ During the Victorian era, love letters read much like business letters because marriage was thought of as a business partnership rather than as a romantic relationship (see Jane Austin, *Pride and Prejudice*).

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Standard Document Sections

1. Title Page
2. Copyright Page or Revision History Page
3. Executive Summary or Abstract
4. Acknowledgments
5. Table of Contents
6. List of Figures and Tables
7. **Glossary (New Convention)**
8. Body of the Document
9. **Glossary (Old Convention)**
10. References
11. Technical Appendices

Glossary Placement

Old Convention: Glossary in an appendix.
1st technical term bolded and footnoted.
Footnote indicates location of glossary.

New Convention: Glossary in prefatory pages where
reader sees it **before** reading.
Can copy it and refer to it while reading.

Advantages: Recognizes that printed documents
are read in a linear way. (Also easier to
do for many writers.)

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New Forms for New Approaches

➢ On-line user manuals use <u>hypertext links</u> – they assume readers **use program then read** manual as required.

➢ Printed user manuals use TofC and index – they assume readers **read manual then use** program.

Advantages: Recognizes that electronic documents are read in a **non-linear** way

Disadvantages: How often do you use the help files supplied with programs? Why?

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Remember!

➢ Forms change and evolve along with the content.

➢ Different times, different values, different content, different forms.

➢ Follow accepted conventions.

➢ Be prepared to change conventions as dictated by audience, purpose, and context.

➢ Form is both generative and constraining. For example, the five paragraph essay form is *generative* because it often helps those with limited ideas to **partly** explore a topic, but it is also *constraining* because it may prevent gifted thinkers from a **more complete** exploration of the topic.

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Master Styles and Templates

➢ Styles ensure a consistent appearance in terms of headings, captions, paragraph spacing, fonts, etc.

➢ Styles make changing the format of a document relatively easy.

➢ Styles save time:

- Use speed formatting keys (Ctrl-B = **Bold**, etc.)

- Make global changes quickly

- Eliminate need to remember previous format

- Allows automatic generation of TofC, LofF, etc.
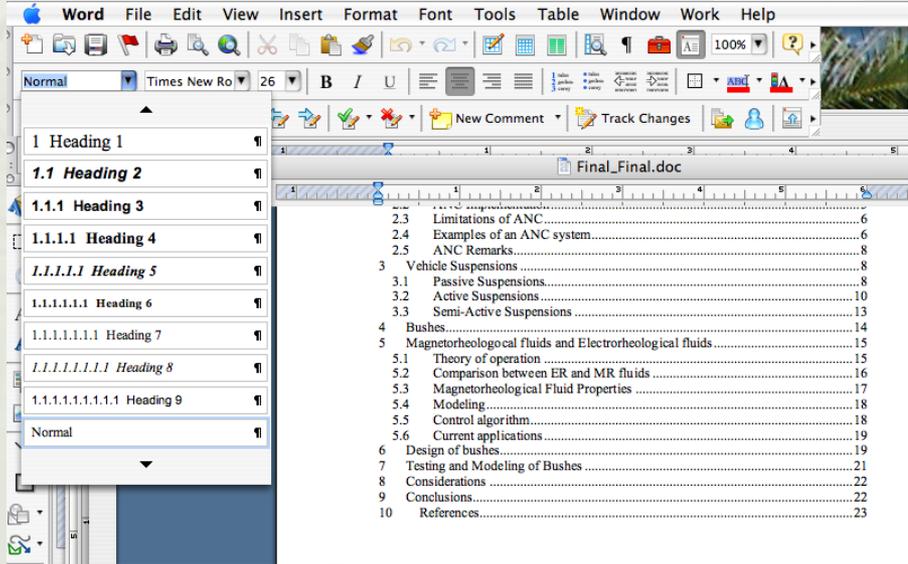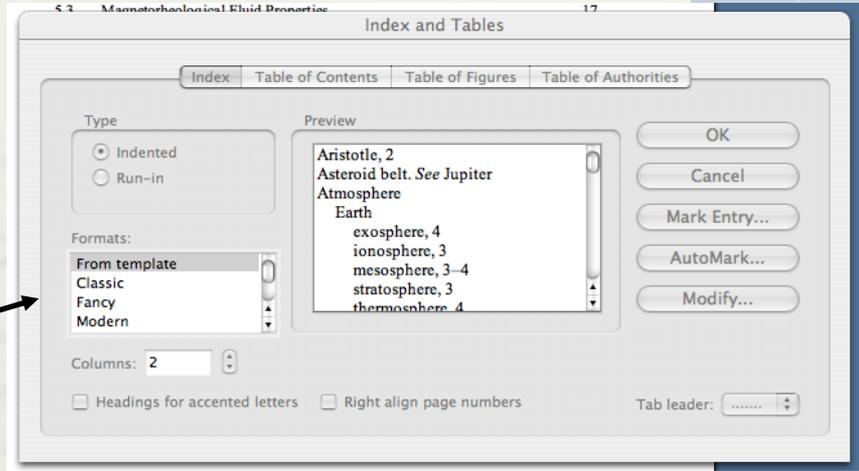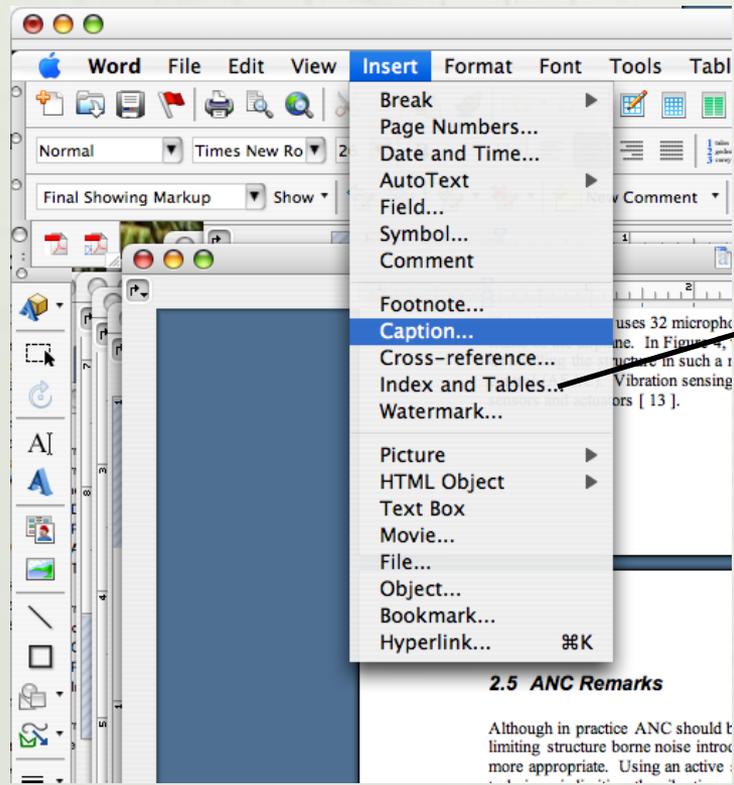
➢ Recognize limits of MS Word templates!

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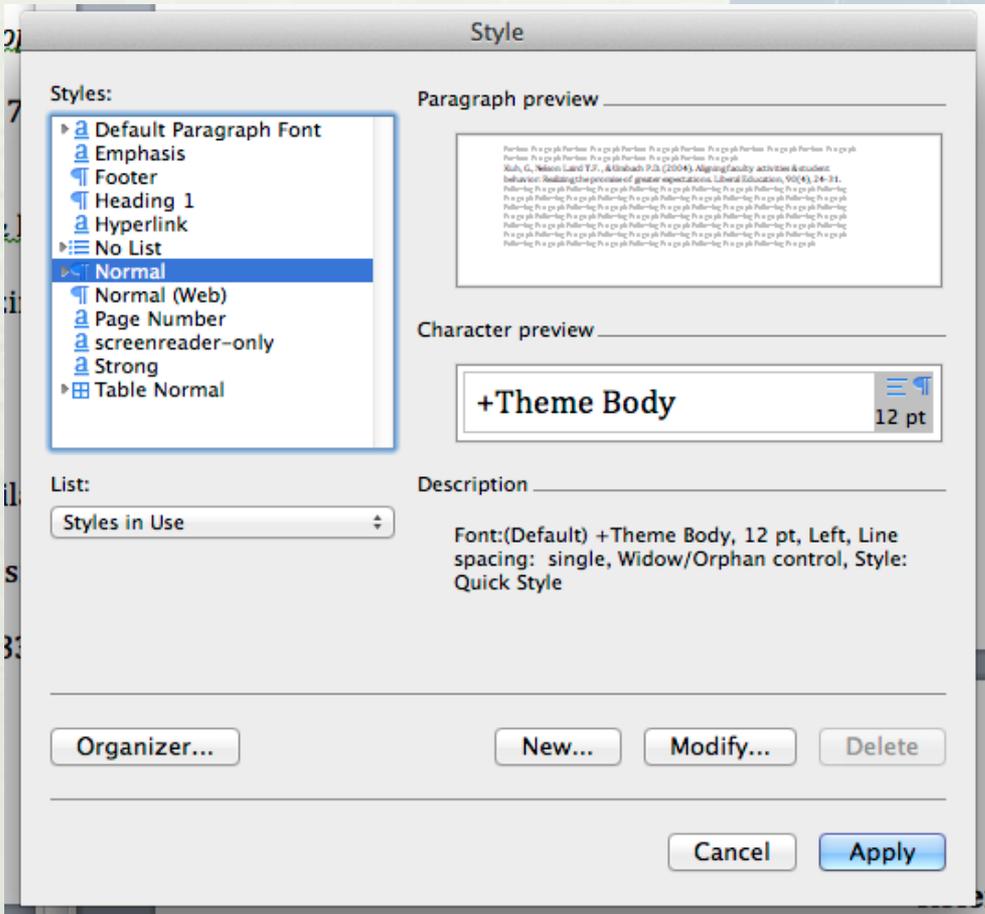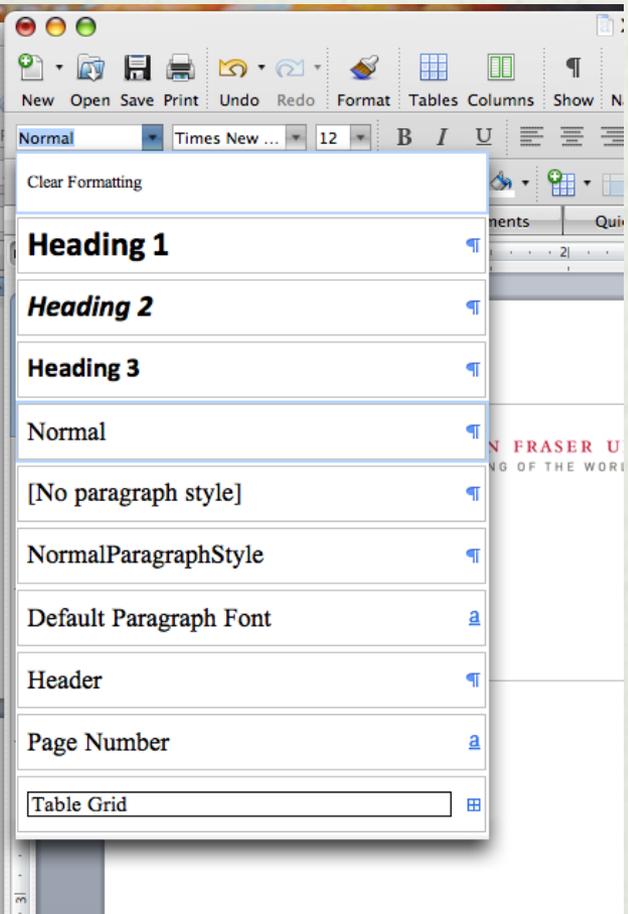
Captions & Cross References
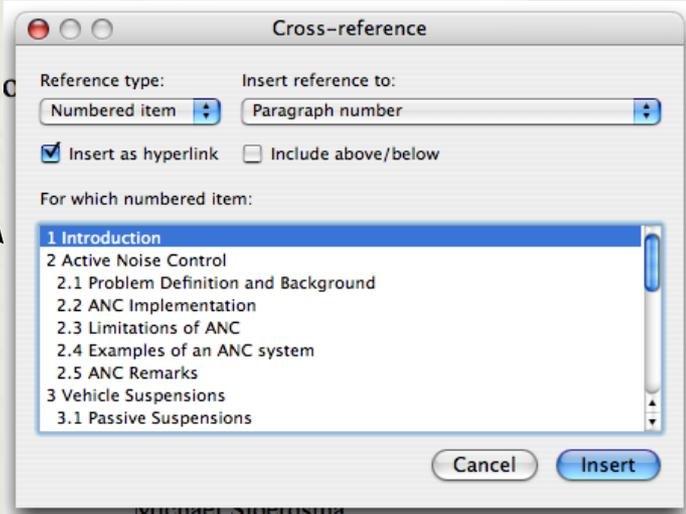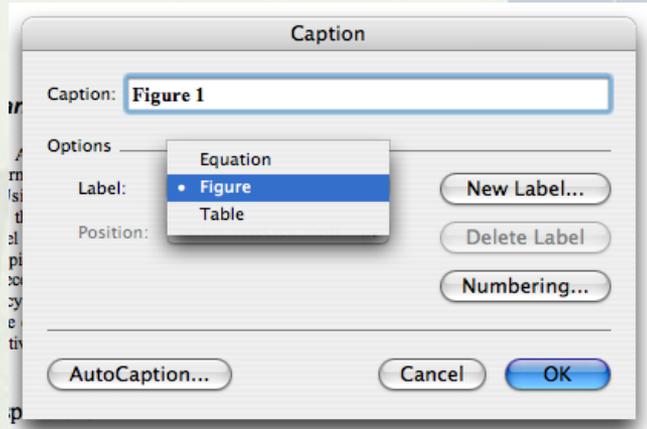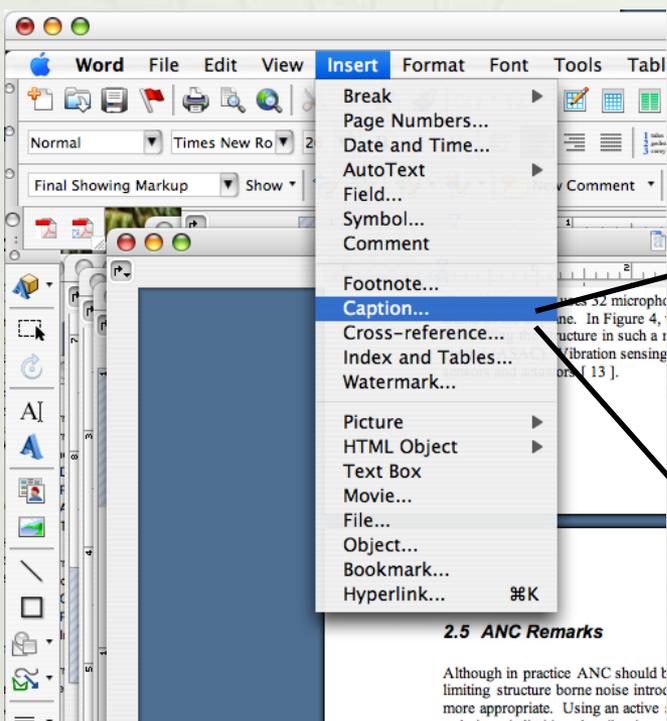
Headings and Tables of Contents
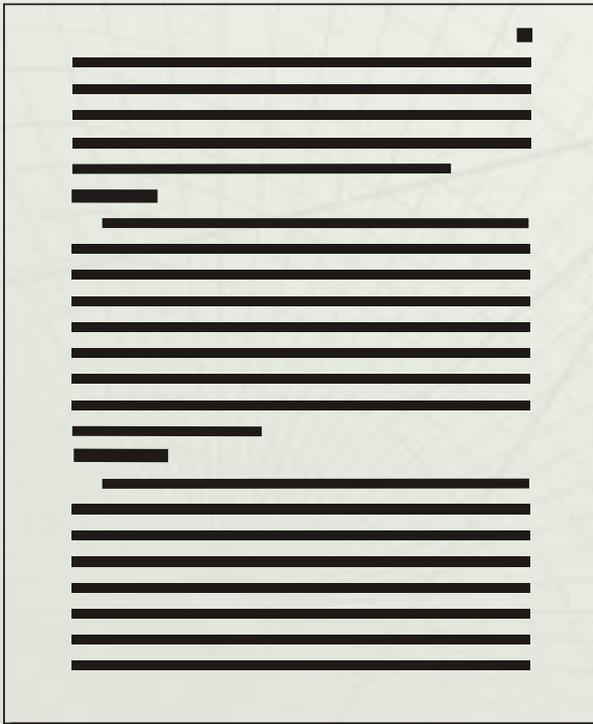
Using Stylesheets

Form and White Space

When we look at documents, we focus on the black stuff (the text) and don't consider the impact of the white space.
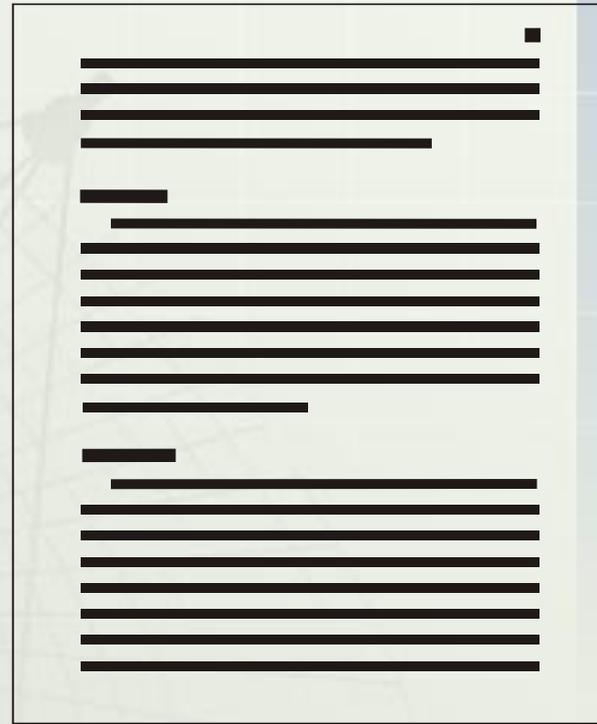
➤ White space is used to separate different elements of a document.

➤ More subtly, white space indicates to readers the relative complexity of a document.

White Space and Separation
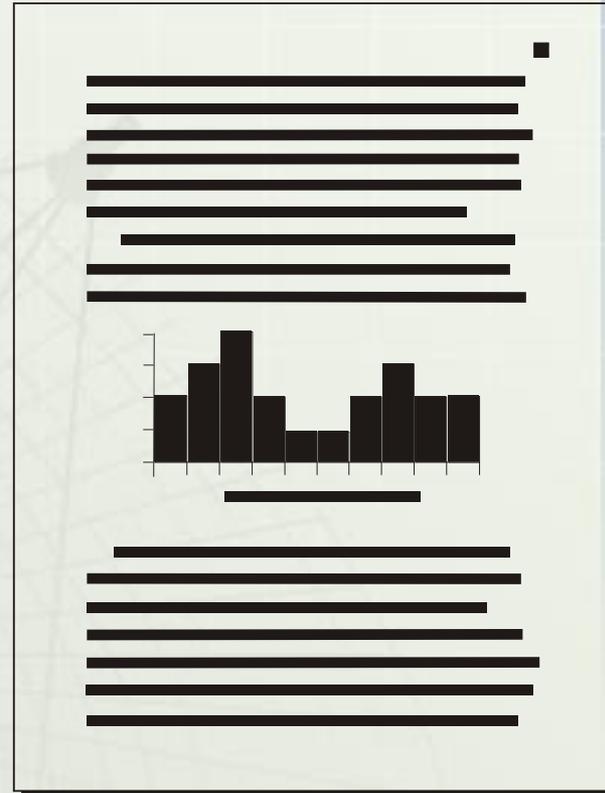
**Unclear Relationship Between
Headings and Text**

**Clear Relationship Between
Headings and Text**

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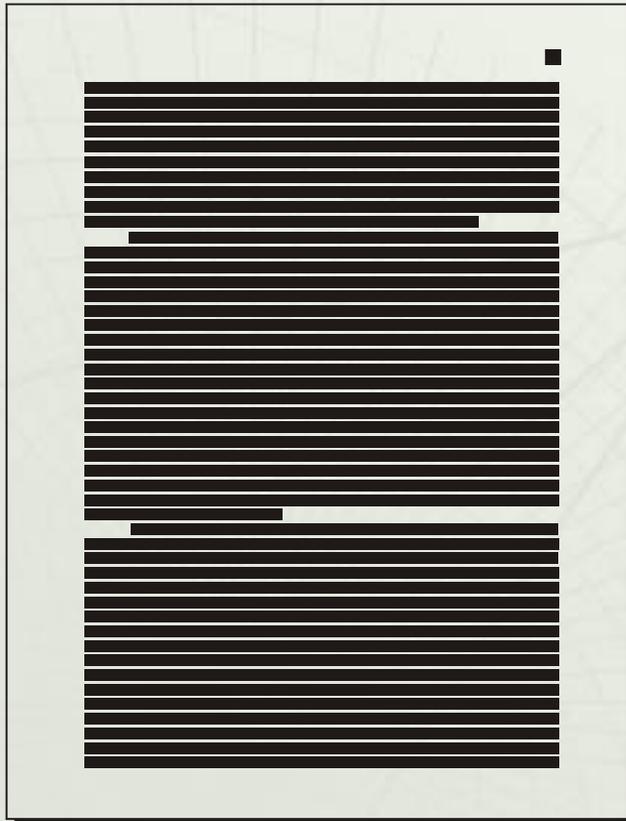
White Space and Separation
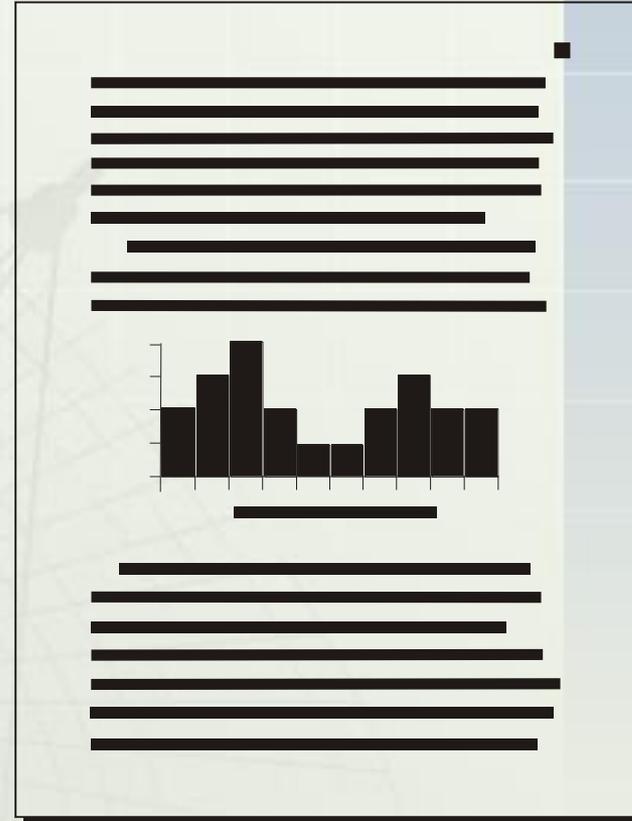
Unclear Relationship Between Figure Label and Text

Clear Relationship Between Figure Label and Text

White Space and Complexity

Single Spaced Without Graphics

Double Spaced With Graphics

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Form and Print Quality

The quality of the print profoundly affects the ability of readers to easily process text (**form is "in-form-ative")**
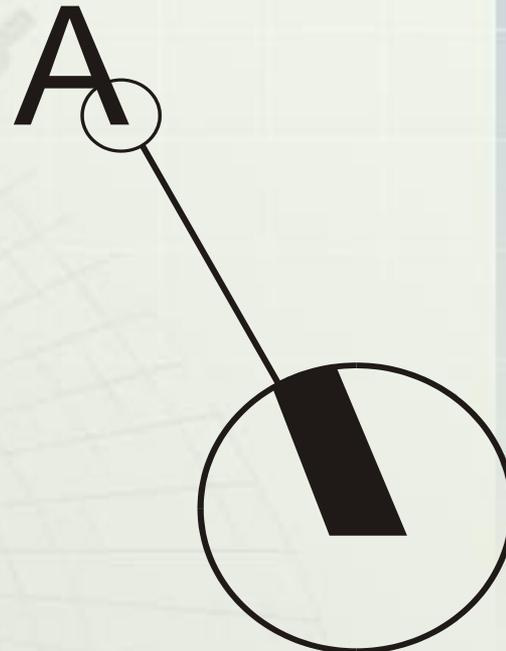
Print quality is affected by the following:

➢ **Font Type:** serifed, sans serif, decorative
➢ **Font Size:**   12 point is standard
➢ **Font Style:** underlining, capitalization, italics
➢ **Line Style:** justification, length, hyphenation

Serifed vs. Sans Serif Fonts

A

A

Serifs

Sans Serifs

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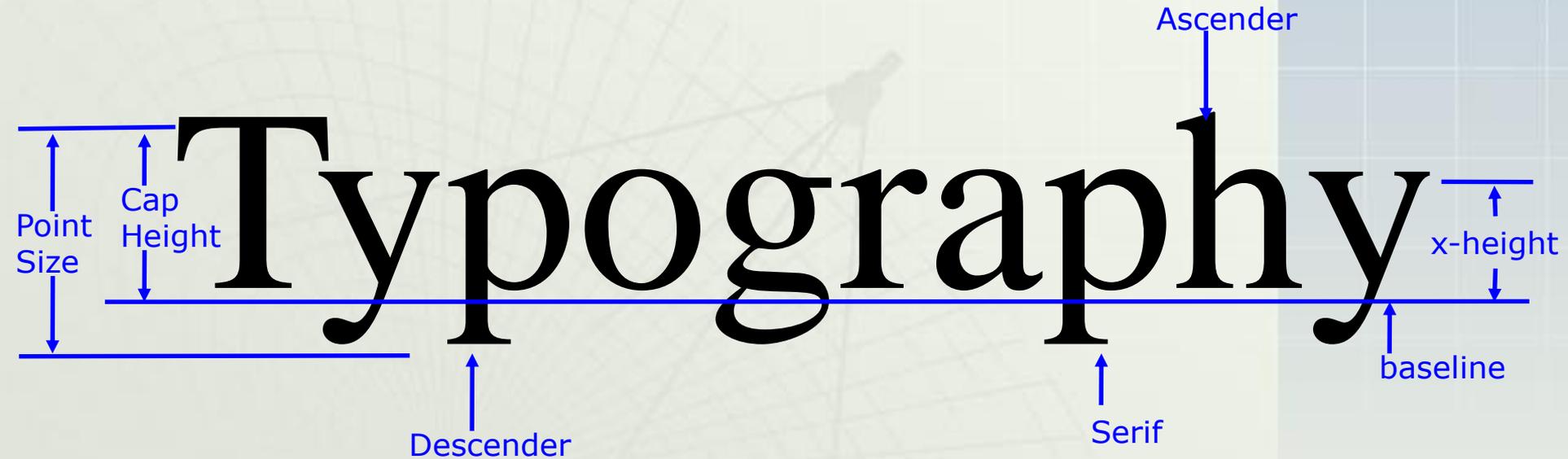
Serifed vs. Sans Serif

A serifed font is intrinsically easier to read than a sans serif font because it allows readers to easily distinguish between the identical "pen strokes" that are parts of different letters.

Illumination   Illumination

Aoccdrnig to rscheearch at Cmabrigde Uinervtisy, it deosn't mttaer in waht oredr the ltteers in a wrod are, the olny iprmoetnt tihng is taht the frist and lsat ltteer be at the rghit pclae. The rset can be a toatl mses and you can sitll raed it wouthit a porbelm. Tihs is bcuseae the huamn mnid deos not raed ervey lteter by istlef, but the wrod as a wlohe.

Typography

Ascender

Typography

Cap
Height

Point
Size

x-height

baseline

Descender

Serif

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Font Types and Purposes

Text (Serif)	Headings (Sans Serif)	Special Purpose
Times New Roman	Arial	Courier
Book Antiqua	Arial Narrow	Lucida Fax
Century Schoolbook	Avant Garde	Old English Text
Bookman Old Style		Brush Script

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Examples of Different Fonts
Examples of Different Fonts

Lucida Fax is an easy-to-read font that is sometimes used when sending FAXes. Lucida Fax is an easy-to-read font that is sometimes used when sending FAXes. Lucida Fax is an easy-to-read font that is sometimes used when sending FAXes.

Book Antiqua is an easy-to-read font that is sometimes used for photocopied documents. Book Antiqua is an easy-to-read font that is sometimes used for photocopied documents. Book Antiqua is an easy-to-read font that is sometimes used for photocopied documents.

Times New Roman is a general purpose font that can sometimes be difficult to read. Times New Roman is a general purpose font that can sometimes be difficult to read. Times New Roman is a general purpose font that can sometimes be difficult to read.

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The Problem with Underlining

We read by pattern recognition, rather than letter by letter, so underlining mixed lower/upper case text makes reading more difficult by slowing the reader down because it cuts off the descenders.

<u>**Ways of presenting data graphically**</u>

The Problem with Capitalization

TEXT FORMATTED USING ONLY UPPER CASE LETTERS IS MUCH MORE DIFFICULT TO READ THAN TEXT FORMATTED USING A MIXTURE OF UPPER AND LOWER CASE LETTERS. THIS DIFFICULTY OCCURS BECAUSE WE DO NOT READ VERY EFFICIENTLY LETTER BY LETTER. WE READ MORE EFFICIENTLY WHEN WE CAN RECOGNIZE THE PATTERNS OF WORDS AND THUS CAN READ WORD BY WORD. BECAUSE UPPER CASE LETTERS ARE ALL EVEN IN HEIGHT, WE CANNOT USE PATTERN RECOGNITION, AND WE ARE FORCED TO READ LETTER BY LETTER. THAT SLOWS US DOWN.
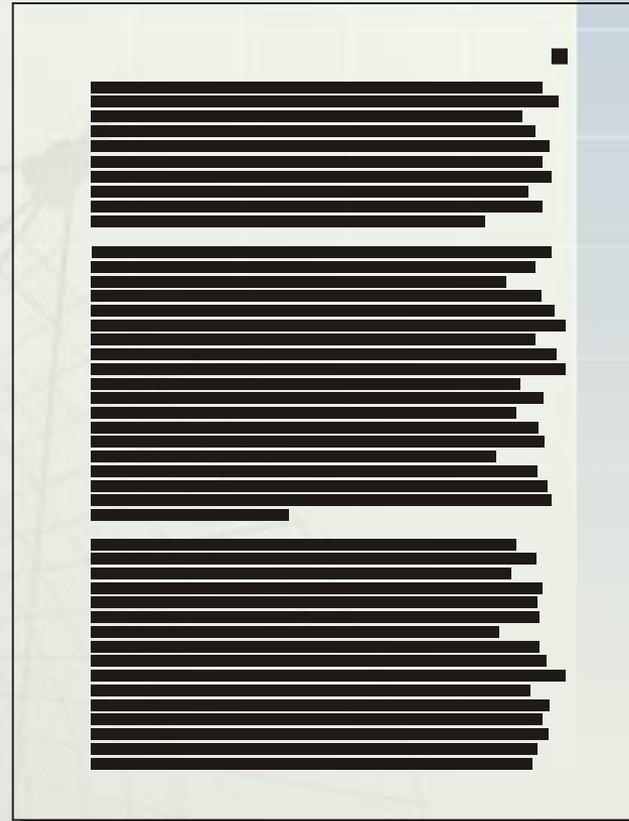
Hyphenation

➢ Do not hyphenate headings or subheadings.

➢ Avoid hyphenating three or more lines in a row because excessive hyphenation slows down readers (much like justification) and creates unsightly parallel lines at the right-hand margin.

➢ Do not hyphenate proper nouns (i.e., names of people and places) or compound words that already have a hyphen in them.

➢ Avoid hyphenating the last word in a paragraph.

➢ Ensure you have broken the word at the correct location depending on its grammatical context (i.e., *pro-ject* is a verb while *proj-ect* is a noun).

➢ Do not let your word processor hyphenate automatically.

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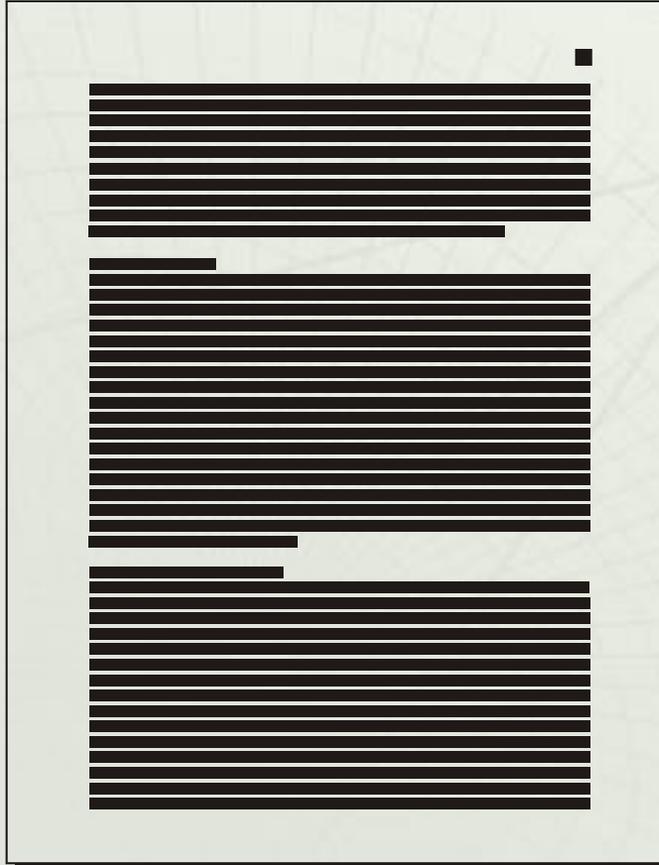School of
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Paragraph Justification
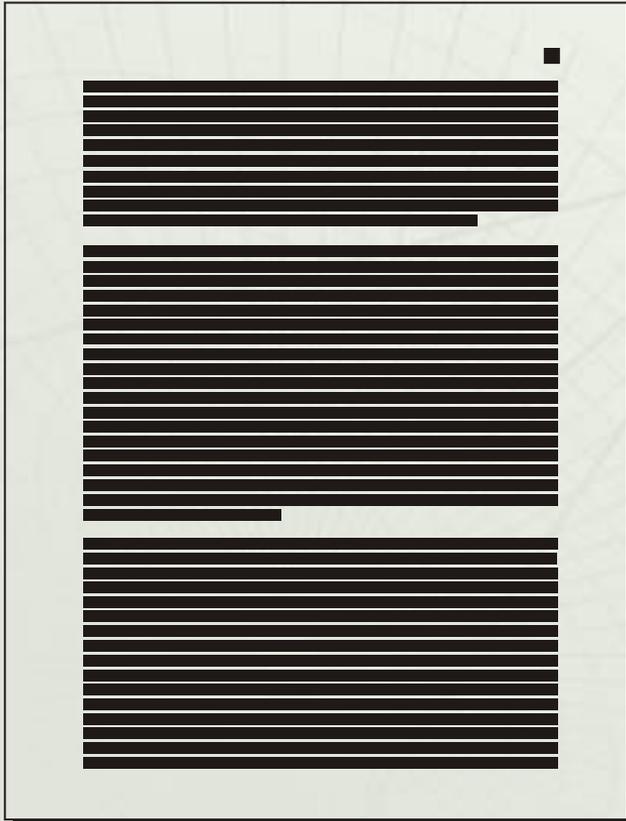
Full Justification   **Ragged Right Margin**

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Margins and Scan Length

Standard Margins

Scholar's Margin

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Positions of Emphasis


More
Emphasis

Less
Emphasis

Less
Emphasis

More
Emphasis

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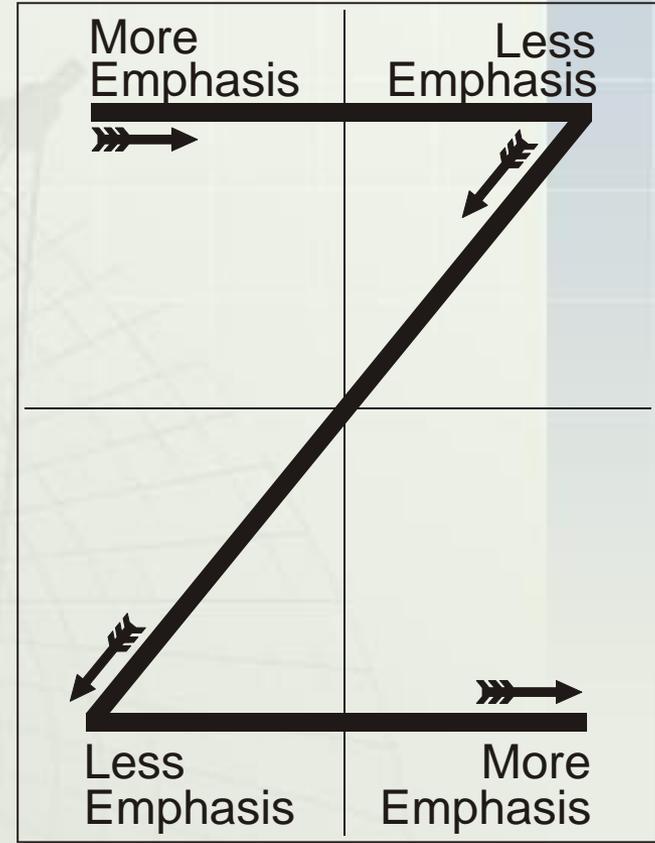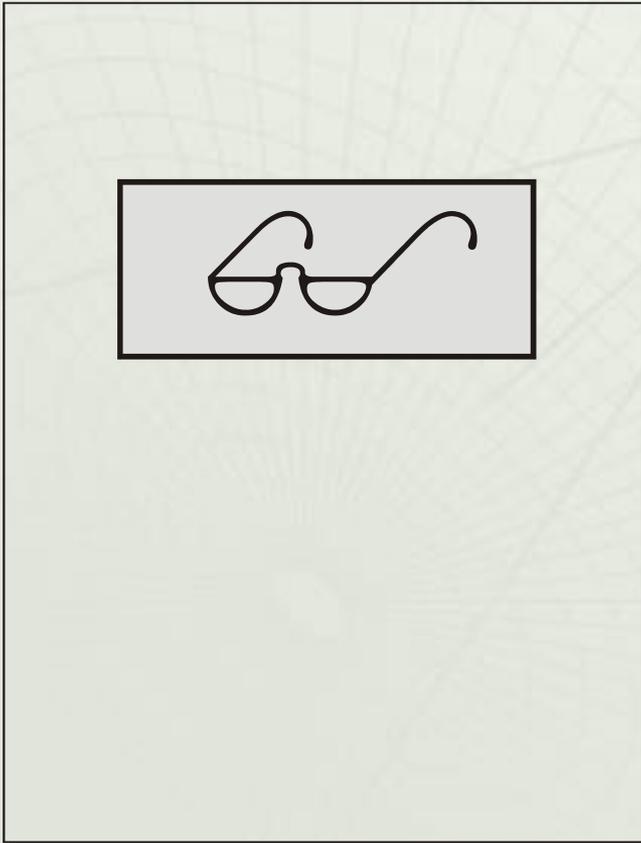
Form and Convention

The following standard conventions indicate to readers whether or not you are a member of a given disciplinary community:
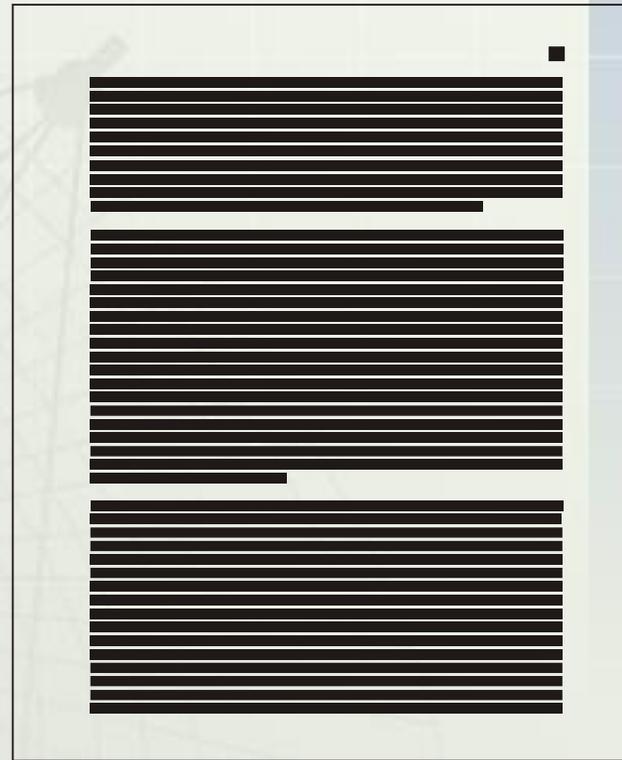
- **Paragraphing:** Indent, Blank Line
- **Pagination:** Arabic, Roman
- **Headings:** Size, Numbering
- **Figures & Tables:** Numbering, Labelling
- **Equations:** Numbering, Spacing
- **Referencing:** IEEE, APA, MLA

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Paragraph Conventions
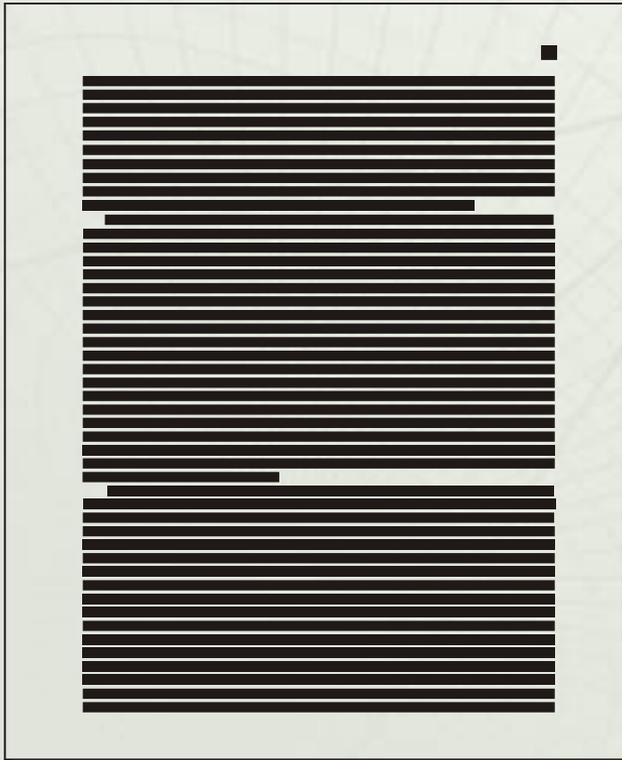
Indent Convention

Blank Line Convention

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Pagination Conventions

7

iv

Prefatory Pages

Body Pages

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Heading Levels

1. Major Heading

1.1. Subheading 1

1.1.1. Sub-subheading 1

1.1.1.1. Paragraph Heading

1.1.1.2. Paragraph Heading

1.1.2. Sub-subheading 2

Guidelines for Figures and Tables

➢ Leave approximately 1 cm of white space between graphics and text.

➢ Always mention figures and tables in the text *before* you present them.

➢ Avoid placing a figure or table in the middle of a sentence.

➢ Number and provide informative titles for all figures and tables. Either capitalize the first letter of all major words in a title (i.e., *Figure 6: Stress Fractures in Titanium-Aluminum Alloys*) or capitalize only the first letter of the first word (i.e., *Figure 6: Stress fractures in titanium-aluminum alloys*).

➢ Indicate the source of borrowed data.

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Guidelines for Illustrations

➢ Electronically produce illustrations if possible and otherwise draw them in black ink.

➢ Avoid out-of-focus pictures or close-ups of complex devices. Where you must present complex diagrams, ensure that they are clearly and concisely labeled.

➢ Draw diagrams to scale or, if it is not possible to do so, indicate that to the reader.

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Guidelines for Graphs

➢ Use the horizontal *(x)* axis of a graph for the independent variable and the vertical *(y)* axis for the dependent variable. Include the zero baselines on your axes wherever possible. If necessary, show that the data is discontinuous with a break in the axis.

➢ Use simple axis labels, but include all the information needed to understand the graph (i.e., label the axes of graphs). Place scale units beside major tick marks only.

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Guidelines for Graphs

➤ Ensure that axes are heavier than grid lines and that curve lines are heavier than the axes. If possible, eliminate grid lines and when you use them, ensure they do not pass through bars or columns representing data.

➤ Where possible, use color to distinguish elements within the graphic, to identify parallel items, or to emphasize specific items (but ensure that you don't use too many different colors – a maximum of three or four is a good rule of thumb). When working in black or white, or preparing a document that will be photocopied, use patterns or shades of gray that are easily distinguished from one another.

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Guidelines for Tables

➢ Avoid presenting too many numbers (i.e., where possible, simplify larger spreadsheets and complex tables or present the same information with a graph).

➢ In complex tables, use horizontal and vertical lines to help readers follow the relationship between the data and the variables.

➢ Place the independent variable on the left and the dependent variable on the right.

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Example of a Table

Table 1: Mohs Hardness Scale for Minerals

Hardness	Common name	Chemical formula	Sp. gravity
1	Talc	$Mg_3Si_4O_{10}(OH)_2$	2.7–2.8
2	Gypsum	$CaSO_4 \cdot 2H_2O$	2.3–2.4
3	Calcite	$CaCO_3$	2.7
4	Fluorite	CaF_2	3.0–3.2
5	Apatite	$Ca_5(PO_4)_3(F,Cl,OH)$	3.1–3.2
6	Feldspar[†]	$KAlSi_3O_8$	2.5–2.6
7	Quartz	SiO_2	2.7
8	Topaz	$Al_2SiO_4(F,OH)_2$	3.4–3.6
9	Corundum	Al_2O_3	3.9–4.1
10	Diamond	C	3.5

Source: Chesterson, C.W. and K.E. Lowe, *The Audubon Society Field Guide to North American Rocks and Minerals*, 1978, (New York: Alfred A. Knopf).

[†]Figures are for Orthoclase Feldspar. The hardness of Plagioclase Feldspar ($NaAlSi_3O_3$) is the same, but the specific gravity is greater (2.62–2.76).

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Guidelines for Lists

➢ Ensure that all items in a list have something in common.

➢ Create grammatically parallel lists (i.e., ensure all items begin with verbs or with nouns).

➢ Use bullets (or another symbol) when the items are of equal importance; use numbers to indicate step-by-step instructions, priority, or order of importance.

➢ Use hanging indents when formatting lists so that the bullets or numbers stand out clearly from the text.

➢ If possible, restrict lists to five or fewer points. If you have more points, attempt to break the list into sub-lists.

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Equations

The resistance of *N* series resistors is obtained by adding up the resistances of each resistor.

The final resistance is

$$x = \sum_{i=l}^{n} y_i \, ,$$

Punctuate Equations

where *y_i* is the resistance of the *i*th resistor.

Italicize Variables

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Guidelines for Equations

➤ Use as concise a notation as possible.

➤ Ensure that you deal properly with superscripts and subscripts and space the elements of the equation appropriately because poorly spaced equations are difficult to read.

➤ Display equations on separate lines when the expressions become even slightly complicated.

➤ To distinguish mathematical variables from regular text, use an italic font both for equations and when referring to variables in the text. (The exception is function names such as "sin," "cos," "log," "max," etc., which are set in the normal font.) Use boldface for vectors and matrices to distinguish them from other variables.

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Guidelines for Equations (Cont'd)

➢ Use Greek letters (e.g., *α, β, Ω, φ, ϑ,* etc.) when appropriate because the extra symbol set makes it easier to recognize the concept the symbol represents (unlike Roman letters -- e.g., *a, b, c, d, e,* etc. -- which we generally try to form into words).

➢ Number equations that are cross-referenced elsewhere in the text. (Numbers are not needed if the equations are not cross referenced or if references are obvious.)

➢ Center the equations and place numbers in parentheses at the right margin as follows:

$$x = mg \, \sin(\vartheta). \qquad\qquad (1)$$

➢ **Use an equation editor.**

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Guidelines for Equations (Cont'd)

➢ Write equations so they can be read as elements of your sentences and use standard punctuation (i.e., put a period after an equation at the end of a sentence or use a comma if the sentence continues to explain the symbols).

➢ Generally reference equations in the text using the form "We can determine the force acting on the ball using (1)." An alternative is to use the expression "Eqn. (1)," but this is less common except at the beginnings of sentences.

➢ Where possible, avoid starting a sentence with a mathematical variable or an equation number.

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APA Referencing Conventions

References

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——. 1995b. Developing new products on time, in time, part 2. *Research Technology Management.* 38:5, 53–57.

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United States Environmental Protection Agency, Office of Pollution Prevention and Toxics (MC 7409). 1996. *Valuing Potential Environmental Liabilities for Managerial Decision-Making: A Review of Available Techniques.* Rep. no. EDA 742-R-96-003. Washington, DC.

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IEEE Referencing

This referencing convention is typically used in electrical and electronics engineering.

Conclusion

➢ **Reflections:** How much time do you spend dealing with the format of your documents?

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