



Institut national  
de la recherche  
scientifique

# THESIS AND DISSERTATION

## WRITING GUIDE

for Pure, Applied,  
and  
Life Sciences

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# 1 INTRODUCTION

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This document summarizes the main writing requirements for theses and dissertations submitted at INRS. It points readers to writing aids and reviews the basic writing conventions for quantities, units, symbols, numbers, abbreviations, and so on.

The guide is provided with an [MS Word model](#) containing the required styles, a LaTeX template and a bibliographic style for *EndNote* software (+*Sciences et technologies*).

Note: In this document, masculine gender is used without discrimination in order to simplify the text.

## 2 CONFIDENTIALITY

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Student work conducted at INRS is sometimes considered to be confidential. This depends on the type of project involved and is examined on a case-by-case basis. Most cases involve either a project that is part of a contract or that is considered to be strategic for the student research team.

A student whose research work is part of a contract is bound to confidentiality by the terms of the contract between the partner and INRS, which often prohibits publication of the thesis or dissertation and also implies major constraints on the publication of articles or conference papers. Such publications must be authorized beforehand by the partner (company, governmental department or agency).

In the case of a strategic project, the student supervisor may make confidentiality of the thesis or dissertation and future articles and conference papers a condition of participation in the project.

The confidentiality requirement can sometimes be lifted after a certain time at the request of one of the partners.

In both cases, the student must formally sign a confidentiality agreement. Since a shortage of publications can represent a major obstacle for Ph.D. graduates seeking an academic career, the student must ensure he fully understands the possible impacts on his career by discussing this subject with his supervisor and the contracting officer of his centre.

## 3 PERSONAL DATA

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Theses and dissertations are normally widely distributed and must therefore exclude any personal information about individuals.

### 3.1 What is personal information?

Information such as an email address, a phone number, a postal address, a signature, a student permanent code, etc. is considered personal information and must be excluded. You also must take care that no person can be identified in a photograph unless you have the written permission of that person. One option for preventing such identification is to modify the photo such that no one can be identified (by adding blur, for example).

### 3.2 Personal information also includes your own!

Students are usually vigilant about protecting the personal information of the individuals who took part in their study as this is a requirement for ethics certifications. However, vigilance about the student's own personal data often is not as good and bits of personal data can be found throughout the thesis or dissertation. This information is often included without much thinking about protecting oneself.

Be particularly vigilant about:

- Including as an appendix or elsewhere forms that you completed for your research (ethics certifications or other requests) that may contain personal data such as your student permanent code, address, etc.;
- Including as an appendix or elsewhere invitation letters to take part in your study in which you have included your contact information;
- Including in your acknowledgments personal information about yourself or your family.

When you are ready for submission (initial and final), you can use the following check list to ensure that all essential elements are there. The section "Checking rights and confidentiality" will help you meet the confidentiality requirements: [Check List](#) (French only).

## 4 EMBARGO

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The student, in collaboration with his supervisor, may ask for a delay before the thesis or dissertation is made available online in cases where a suitable justification exists. To request such a delay, fill out the form on [IDÉ](#). The main reason for requesting an embargo is that it is required by an editor in relation to the publication of articles or a book chapter contained in the thesis or dissertation.

Documents under an embargo will not be published before the authorized release date, but as opposed to a confidentiality agreement, their description (author, title, summary, etc.) will appear in the INRS institutional repository, [Espace INRS](#).

The delay before publication can be 6 months, 1 year, or 2 years. After this period, the document is automatically made available online in the institutional repository. To obtain an additional delay, the student must contact the Graduate and Postdoctoral Studies Department and justify his request.

## 5 FORMAT

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This chapter contains all the necessary information to format your document. The main objective is to help you make choices conform to good practices. It is better to read it and use it from the start in order to avoid wasting time and being less efficient near the end of the process.

### 5.1 General page layout guidelines

For the entire <b>document, including preliminary pages</b>	
Margins	Uniform and 25 mm for odd and even pages, including pages with tables or figures
Paragraphs	Must always begin on the first line of a page and should not end on the first line of a page Justified margins Line spacing: 1.5 Spacing before and after: 6 point
Font	Must be clear and legible (e.g., Arial, Calibri, Tahoma, or Verdana). The Word model uses Arial. The font selected at the beginning must be used throughout the document
Size	11 point for normal text

### 5.2 Page numbers

<b>Page numbering</b> is as follows	
Position of page numbers	Centred at the bottom of the page in 10-point font. Roman or Arabic numerals without any ornamentation. Use same font as text
Preliminary pages	In lowercase Roman numerals, starting from the title page
Introduction and subsequent pages	In Arabic numerals, starting with 1 up to the end of the document, including the appendix pages, which continue consecutively from the body pages

### 5.3 Pages without numbers

All pages of a document (even blank ones) must be counted for page numbering. However, the number is omitted for some pages.

Omit the number for title, epigraph, and dedication pages, and for all pages starting with a main title (e.g., Introduction, First Chapter, Chapter II, Conclusion, Index, Bibliography, Appendix). Note that pages with main titles should if possible be odd pages (i.e., located to the right), even if it implies to precede them by a blank page in a doubled-sided printed document.

### 5.4 Blank pages for impression

To produce a high quality printable version, it is necessary to insert blank pages in order that all chapters start on odd pages. Without these insertions, the page layout of the double-sided printed version will not be conformed to usual standards for printed documents, although the online version will not be affected.

### 5.5 Heading and paragraph hierarchy

**Headings** and **subheadings** are organized into a hierarchy using font sizes and styles of MS Word model. Numbering should not exceed three numerical levels. Level 1 headings are left-aligned, except on preliminary pages, where they are centred. All headings and subheadings are single-spaced without a period at the end. The same rules apply in appendices.

#### Example of title for preliminary pages

Text: 14 point - bold ALL IN UPPERCASE	Centred, single spacing Line break: Shift + Enter Spacing before: 0 point and after: 18 point
Style name in the MS Word model: <i>Titre liminaire</i> Corresponds to the first level in the table of contents	
<b>ACKNOWLEDGMENTS</b>	

### Example of title for numbered chapters and headings

Text: 14 point - bold ALL IN UPPERCASE Horizontal line underneath	Left-aligned, single spacing Line break: Shift + Enter Spacing before: 0 point and after: 24 point
Style name in the MS Word model: <i>Titre 1</i> Corresponds to the first level in the table of contents	
<b>1 SOLUTION FOR MATERIAL TRANSFER</b>	

### Example of title for subheadings

Text: 12 point - bold Only 1 <sup>st</sup> letter in uppercase	Single spacing Spacing before: 18 point and after: 12 point
Style name in the MS Word model: <i>Titre 2</i> Corresponds to the second level in the table of contents	
<b>1.1 Numbering of objects used</b>	

### Example of title for sub-subheadings

Text: 11 point - bold Only 1 <sup>st</sup> letter in uppercase Indented 1.25 cm	Single spacing Spacing before: 18 point and after: 12 point
Style name in the MS Word model: <i>Titre 3</i> Corresponds to the third level in the table of contents	
<b>1.1.1 Undesirable preconceived ideas</b>	

Avoid placing a level 2 or 3 subheading immediately under a level 1 or 2 heading. If it cannot be avoided, insert an empty line (text level).

The initial font selected must be consistent in headings and footnotes. The MS Word model uses Arial and styles used can be viewed in the generated table of contents.



## 5.6 Note and quotation format

Footnotes	<p>Justified margins</p> <p>Single spacing</p> <p>First line indented by -0.5 cm, with tab at 0.5 cm</p> <p>Spacing after: 6 point</p> <p>Text: 9 point, normal</p>
<p>Long quotations of more than three lines are set off as separate paragraphs.</p> <p>*Short quotations are inserted in regular paragraphs between quotation marks (“[...]”).</p>	<p>Justified margins</p> <p>Single spacing</p> <p>Indented 1 cm from the left and right margins</p> <p>Spacing before and after: 6 point</p> <p>Text: 11 point, normal</p>

## 5.7 Tables and figures

The **main title** is preceded by an Arabic numeral in sequential order based on order of appearance in the chapter (e.g., Table 4.1 and Figure 4.1). The title will appear in the lists of tables and figures. It must not be longer than 60 characters:

- Centred and placed below a figure and above a table
- Bold, 9-point font
- Left-aligned, justified margins, single-spaced
- 12-point spacing before and 6 point after
- Maximum length of 60 characters recommended

The **caption** provides an additional explanation and must be placed underneath the table or figure. Anything that is not part of the title (e.g., attribution) must be inserted in a note below the table. Descriptions, explanations, and referrals to works cited can be included in the caption but never in the title.

- Bold, 9-point font
- Left-aligned, justified, single-spaced

- 6-point spacing before and 12 point after
- No character maximum

An example of figure:

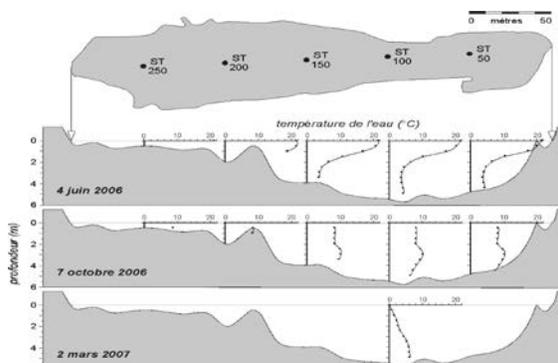


Figure 4.1: Figure title, placed below (max of 60 char.)

A caption may follow the figure so that readers can understand the content without having to consult the text.

An example of table:

Table 4.1: Table title, placed above (max of 60 char.)

Category heading	Column 1 heading	Column 2 heading	Column 3 heading
<b>Heading line 1</b>			
Subheading line 1	12	12	12
Subheading line 2	12	12	12
<b>Heading line 2</b>			
Subheading line 1	12	12	12
Subheading line 2	12	12	12
<b>Heading line 3</b>			
Subheading line 1	12	12	12
Subheading line 2	12	12	12

A caption may follow the table so that readers can understand the content of the table without having to consult the text.

The **orientation** of the table/figure must follow that of the text. It must be centred in the page.

For large tables/figures:

- They may be displayed in landscape orientation with a 90° counterclockwise (not clockwise) rotation
- They may be shown on an odd-numbered page on a 11x17" sheet
- Oversized tables are displayed in an appendix

A figure (e.g., diagram, sketch, map, or photograph) appears after the first mention and is located in the first place where it can be completely inserted, between two paragraphs.

It is essential that the format of all tables/figures inserted in the document be consistent with regard to boxes, grids, symbols, lines, headings, and so on.

When content is not completely new, it is advisable to refer to the original source (e.g., reproduction authorized by..., Adapted from...).

**Note:** Since your thesis or dissertation will be distributed online on Espace INRS, complete or substantial reproduction of a table/figure requires written permission from the copyright holder which you must keep a copy in your files.

### **5.7.1 Guidelines specific to tables**

Whole **numbers** are centred in columns; others are aligned on the decimal point using a decimal tab.

**Line and column headings** (and potentially subheadings as well) are left-aligned for line headings and centred for column headings.

For very large tables:

- The size of the characters and numerals may be reduced from one to three points
- The table may be split into sections over a number of pages

**Annotations** appear underneath the table:

- Note indicators: lowercase superscript letters, in alphabetical order from top to bottom and left to right
- Format: same size font as in the table, single-spaced and run the entire width of the table

## 5.8 Equations

All equations must be numbered sequentially in Arabic numerals. These numbers must appear along the document's right margin in parentheses. Mathematical and chemical equations follow the same numbering.

Equation terms and symbols, if they are not explained in the text, must be given in a caption under the equation. For example:

$$A = A_0 e^{-\lambda t} \quad (1)$$

$$t = \frac{1}{\lambda} \ln \left( \frac{A_0}{A} \right) \quad (2)$$

Where  $A$  is the activity of the radioactive isotope at depth ( $z = x$  cm) in sediment

$A_0$  is the activity of the radioactive isotope on the surface ( $z = 0$ )

$\lambda$  is the radioactive decay constant for the isotope

$t$  is the age (year) of the sediment at depth ( $z = x$  cm)

## 6 CONTENTS OF A TRADITIONAL THESIS OR DISSERTATION

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Theses and dissertations written for INRS must include the following components:

SECTIONS	NOTES
Preliminary pages	See details below
Introduction	
Body text	As chapters
Conclusion	
Bibliography	
Appendix pages	Including reference and appendix sections

The order of the sections must be respected.

**Note:** Article-based theses and dissertations have a different structure (see section 7).

### 6.1 Preliminary pages

They comprise all the information needed to succinctly describe the contents of a work:

ORDER OF PRELIMINARY PAGES	
MANDATORY	Optional
<b>Title page</b>	
	Dedication
	Acknowledgments
	Foreword
<b>Abstract and keywords</b>	
<b>Résumé and mots-clés (French abstract and keywords)</b>	
<b>Synopsis in French</b>	
<b>Table of contents</b>	
<b>List of figures</b>	
<b>List of tables</b>	
	List of acronyms and abbreviations

#### 6.1.1 Title page

The title page includes the usual basic information (see below). Once completed, distribute the components over the entire page.

COMPONENTS	NOTES
Logo of the Université du Québec	Top left
Logo of INRS	Top right
Logo of the other institution (dual degree programs only)	Top right with INRS logo at the centre of the page
Name of the research centre	Centre Eau Terre Environnement Centre Énergie Matériaux Télécommunications Centre Armand-Frappier Santé Biotechnologie
Title	Uppercase, 14-point font, max of 175 characters including spaces and punctuation Bold, centred and single-spaced
Student name	Lowercase except first letters
Program	See table below
Evaluation committee members	Listed in a table
Copyright	© All rights reserved to “student name”, month year

The programs and degrees that INRS offers at the Eau Terre Environnement, Énergie Matériaux Télécommunications, and Armand-Frappier Santé Biotechnologie centres are listed below and must appear in the following forms on the title page:

Master of Science, M.Sc.	Doctor of Philosophy, Ph.D.
Program	Program
Master’s in Water Sciences	Doctorate in Water Sciences
Master’s in Earth Sciences Jointly offered by INRS and Université Laval	Doctorate in Earth Sciences Jointly offered by INRS and Université Laval
Master’s in Energy and Material Sciences	Doctorate in Energy and Material Sciences
Master’s in Telecommunications	Doctorate in Telecommunications
Master’s in Experimental Health Sciences	
Master’s in Applied Microbiology	Doctorate in Biology
Master’s in Virology and Immunology	Doctorate in Virology and Immunology
Example of dual degree: Master’s in Earth Sciences at INRS Master’s in Earth Sciences at “institution name”	Example of dual degree: Doctorate in Earth Sciences at INRS Doctorate in Earth Sciences at “institution name”

### 6.1.2 Abstracts

An abstract, or summary, must be included in French and English, regardless of the language in which the document is written.

The abstract should **never** include references, chemical equations, or complex mathematical formulas.

The abstract is single-spaced and should not exceed 150 to 200 words for a master's thesis, or 350 to 400 words for a doctoral dissertation. It should be followed by a series of keywords (maximum 10).

The French abstract is a translation of the English abstract and is subject to the same conditions (e.g., length, keywords).

### 6.1.3 Synopsis (if required)

A *synopsis* **is required** when a thesis or dissertation is written in English. It should be about twenty (20) pages in length and is in no way a replacement for the French abstract. This section includes the main points discussed in the document and explains the working hypotheses, research objectives, methodology, and results (i.e., the normal parts of a thesis) **in much more detail than the abstract does**. Unlike the abstract, the synopsis can **refer to tables and figures** in the main text.

### 6.1.4 Table of contents

A maximum of three heading levels are permitted. The MS Word model can be used to generate a table of contents automatically.

### 6.1.5 Lists of figures and tables

Each list is separate and independent. The MS Word model can be used to generate the lists automatically.

## 6.2 Introduction, development and conclusion

The introduction represents about 10% of the overall length of the thesis or dissertation. The chapters constitute most of the body text. Page layout should be as described in section 5.1.

### **6.3 Bibliography**

Entries must be complete, consistent, and clear. See section 8 for all details.

### **6.4 Appendix pages**

They bring additional information to the body text and must only include elements that are essential to the understanding of the thesis or dissertation or to support its argumentation. It is important to take time to think about what should be included or not in the appendices since they will be available online.

#### **6.4.1 Appendices**

The appendices are placed after the bibliography. If there are more than one, they appear in the order in which they are mentioned in the text, numbered as Appendix I, Appendix II, Appendix III, and so on, in uppercase Roman numerals, followed by their proper titles.

#### **6.4.2 Other lists**

Other lists may be added as needed (e.g., list of abbreviations, acronyms, symbols, appendices).

## 7 ARTICLE-BASED THESES AND DISSERTATIONS

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Article-based theses and dissertations at INRS may have these two different structures (see options below). Centre Eau Terre Environnement recommends option B. The order of sections is as follows:

### Option A

SECTIONS	NOTES
Preliminary pages	
General introduction	
Bibliography	
Articles	As a chapter
Bibliography	Repeat for each article
General discussion and conclusion	
Bibliography	
Appendix pages	

For further explanations and more details on how to organize the bibliographies for option A, see APPENDIX VI.

### Option B

SECTIONS	NOTES
Preliminary pages	
General introduction	
Articles	Without bibliography
General discussion and conclusion	
Bibliography	Includes references for all articles
Appendix pages	

For further explanations and more details on how to organize the bibliographies for option B, see APPENDIX VII.

In both options, the order of the sections must be respected.

## **7.1 Preliminary pages**

For more information on the preliminary pages, see section 6.1. They are subject to the same guidelines as those for traditional theses and dissertations.

## **7.2 General Introduction**

This chapter should comprise a context (1-2 pages), a literature review (20-30 pages), and a presentation of the thesis structure (2-3 pages). The latter is used to justify and link each article with respect to the thesis objectives. For each article, indicate its title, objectives, hypotheses to be tested if needed, and the methodological approach.

The bibliography will be inserted at the end of the introduction or at the end of the document depending on the option chosen. For more information on the bibliography, see section 8.

## **7.3 Articles**

Evaluating student research remains an exclusive competence of INRS. Articles written for publication have to go through the regular evaluation process by the student committee. Acceptance of one or more articles for publication does not constitute a condition for obtaining the degree, nor does it influence the evaluation of the thesis by the committee or exempt the student from making the corrections requested.

Each article constitutes a chapter.

**Note:** Each program has its own requirements. Make sure you know them well from the start.

### **7.3.1 Recommended number of articles**

Standards and principles guiding the minimum number of articles that should be included in the thesis vary between programs according to the specific context of the study field. Make sure you have discussed the subject in detail with your supervisor and the program director.

APPENDIX II provides general information only and specifics may have evolved over time.

### 7.3.2 Article introductory page

Articles are introduced by a page giving the following information:

SECTIONS	NOTES
Article's title	The French translation is added when the thesis or dissertation is written in English
Names of the authors and their professional affiliations	Full first names and initials
Title of the journal or work to which the article has been submitted or in which it has been accepted or published	
Date of submission, acceptance, or publication	With volume number and pages
DOI, if available	
A few paragraphs explaining the nature of the student and each co-author contributions to the article	For each article
For the second article and all of those that follow	A paragraph explaining the link between the preceding article(s) and the article that follows

### 7.3.3 Article format

Each article must appear in manuscript form, with the **exact same text as the one submitted or pending submission for publication**, but in the format of the thesis or dissertation:

- Page numbers follow that of the entire thesis or dissertation
- The article's title can be the chapter's title or if too long, use a shortened version for the chapter's title, and indicate the complete title of the article in the first paragraph of the chapter. We recommend that the chapters' title does not exceed 75 characters (spaces included). A period is not used at the end of headings and subheadings
- Tables and figures are inserted in the position they would occupy in a traditional version rather than at the end, so that reading is more fluid
- Headings, subheadings and sub-subheadings must be numbered following the preceding section
- For the second article and all those that follow, add a paragraph explaining the links between the preceding article(s) and the article that follow stating the main conclusions reached and the questions remaining that are covered in the next article on an additional page placed between the two articles

For in-text citations (author-date vs numeric), a possible exception from this guide is presented in APPENDIX VII for selected journals.

#### **7.3.4 Author rights**

For legal reasons, the publisher's definitive PDF version (reprint) of a published article cannot be inserted for any reason whatsoever.

**Note:** Articles that have been accepted or published by publishers that do not authorize their distribution online will be removed when the thesis is entered in the institutional repository (Espace INRS) and replaced by a simple bibliographic reference, including a DOI link to the article on the publisher's website.

A guide for professors and researchers in the academic sector that defines author rights in Canada and summarizes the principles that govern their application is available. It gives authors specific information on the use of copyright-protected works as part of their academic activities.

[Author rights guide](#) (French only)

#### **7.3.5 Embargo on publication**

Since the thesis or dissertation will be distributed online on Espace INRS, it is strongly suggested to ask for an embargo period at the final submission if a chapter/article has not yet been submitted or has just been submitted. This precaution is to prevent the rejection of the article by the editor due to a publication already available online which can be considered as plagiarism.

### **7.4 General discussion and conclusion**

This final chapter contains a general discussion and a conclusion. The discussion synthesizes the main elements of the articles and relates them. This discussion also emphasizes the original and innovative aspects of the research, identifies possible limits to the work, and presents future research avenues. This final chapter typically comprises about 20 pages.

Bibliographic references are inserted at the end of the conclusion or at the end of the document depending on the option chosen. For more information on bibliography, see section 8.

## **7.5 Bibliography**

References can be inserted in the document in two ways:

### **7.5.1 Bibliography for each article/chapter (option A)**

References are inserted at the end of each article. Formatting for each chapter conforms to the journal requirements<sup>1</sup>. Inserting or not an integral bibliography at the end of the document is left to the choice of the student and his supervisor. The format should then follow that presented in section 8 and the articles must be written accordingly as explained in APPENDIX VI.

### **7.5.2 Unified bibliography (option B)**

References of all articles appear only at the end of the document in a unified bibliography. The format should then follow that presented in section 8 and the articles must be written accordingly as explained in APPENDIX VII.

## **7.6 Appendix pages**

The last section comprises the appendix pages, see section 6.4 for more information.

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<sup>1</sup> This is the case for articles whose references are in numerical format instead of author-date.

## 8 BIBLIOGRAPHIC STYLE

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INRS has a specific bibliographic format for the pure and applied sciences as well as a template for Endnote. While this format is not mandatory, consistency must be maintained from the beginning to the end.

With the exception of article-based theses under certain conditions described earlier, only author-date references are acceptable in a thesis or dissertation.

### 8.1 In-text citations

In-text citations include the last name of the first author and the year of publication.

#### 8.1.1 Documents by a single author

Examples:

Adam Smith's mechanistic model is not exempt from criticism, particularly in relation to the role of interest (Godbout, 2007).

After presenting Adam Smith's mechanistic model and its contributions and deficiencies, Godbout (2007) provides an in-depth critical analysis of all interest-based models.

Adam Smith's mechanistic model is not exempt from criticism, particularly in relation to the role of interest (Godbout, 2007, cited in Jones, 2010).

#### 8.1.2 Documents written by two or more authors

Only the first author is named followed by *et al.*:

(Ouarda et al., 2008)

#### 8.1.3 References to multiple documents published by the same author(s) in the same year

Each title is differentiated by a lowercase letter, in alphabetical order. The abridged references take the following form:

(Corriveau, 2007a; Corriveau, 2007b)

(Corriveau et al., 2007c)

#### 8.1.4 Several references at the same place in the text

(Apparicio, 2006; Tétreault, 2010)

#### 8.1.5 Documents with no publication date

The date is replaced with “n.d.” (no date):

(Lévesque, n.d.)

If the date can be deduced, it is given between brackets:

(Helly, [2006])

#### 8.1.6 Citation/reproduction of figures and diagrams

If you are the creator:

Figure 1. Radioactive chain of uranium 238 disintegration

In the case of a figure taken from an article or a book, you must ensure that you have the right/permission to use the figure. In general, commercial editors allow the use of figures in theses and dissertations:

Figure 2. Schematic diagram of a morbillivirus (from Rouxel, 2012)

Most editors do not consider that a French translation is a modification to a figure. But you still need to make sure it is authorized:

Figure 3: Phylogenic tree of morbillivirus (modified/adapted from Barrett, 1999)

#### 8.1.7 Two-level citations: X citing Y

This is important if the origin of the cited concept can clearly be attributed to an older reference which has not been consulted directly. Whether or not you have consulted the older reference, the references of the two cited authors must both appear in the bibliography:

(Godbout, 2010, cited in Jones, 2013)

**Note:** To be used with caution because you then judge the older author based on the interpretation of the first-level author.

Listing personal communication (e.g., letters, emails) in a bibliography is not recommended because these documents cannot be consulted by readers.

## 8.2 References and the bibliography

References must appear in the following order:

- Alphabetical order by the first author's last name
- Publication date, in decreasing order
- Alphabetical order by title (ignoring the initial article)

If the list contains more than one work by the same author, use the same form of the name, preferably the most complete, if its appearance varies from one document to another.

A comma separates the names of the first and second authors. An ampersand "&" separates the names of the last two authors:

Ayotte C (2006) Significance of 19-norandrosterone in athletes' urine samples. *British Journal of Sports Medicine* 40 Suppl 1:i25-29.

Cojocar CV, Harnagea C, Pignolet A, Rosei F (2006) Nanostenciling of functional materials by room temperature pulsed laser deposition. *IEEE Transactions on Nanotechnology* 5(5):470-477.

Franco A, Costoya MA & Roca E (2007) Estimating risk during showering exposure to VOCs of workers in a metal-degreasing facility. *J Toxicol Environ Health A* 70(7): 627-637.

Institut national de la recherche scientifique (2005). Colloque international jeunes et dynamiques territoriales. INRS Observatoire Jeunes et société, Quebec City. DVD, 11 h 30 min.

Todaro JL (2008) The truth is out there: Is that my garbage can? *Lib. Admin. Manage.* 22(1): 47-48

US EPA (2013) Projected Emission Reductions Overstated and Buy American Requirements Not Met Under EPA Award to the Tennessee Department of Transportation, Report No. 13-R-0321. US Environmental Protection Agency, Washington, DC. 82 p.

Use "Anonymous" when the author is unknown.

Anonymous (2009) California Water War. *The Economist* 393(8652):34-36.

Since there is not one specific author of a collective work, the editor is named, followed by "Ed." (or "Eds." if there are more than one).

Soutter M, Mermoud A & Musy A (Eds.) (2007) *Ingénierie des eaux et du sol: Processus et aménagements*. Presses polytechniques et universitaires romandes, Lausanne, 294 p.

In the case of chapters with one or more authors, the names of the book editors, followed by “Eds.,” are given after the title of the book.

Bertrand-Krajewski JL, Fletcher TD & Mitchell VG (2007) Spatial and temporal scale considerations. Fletcher TD & Deletic A (Eds.) Data requirements for integrated urban water management, (Urban Water Series - UNESCO-IHP: 1), CRC Press, Boca Raton, pp 45-64.

Only the first word of the title of an article or a book chapter takes an initial uppercase letter. However, for titles in English, all “major” words (e.g., nouns, adjectives, verbs) in the name of a journal or the title of a book are written with an uppercase letter.

Chiu WA, Caldwell JC, Keshava N & Scott CS (2006) Key scientific issues in the health risk assessment of trichloroethylene. *Environmental Health Perspectives* 114(9):1445-1449.

Cloutier M, Mantovani D, Rosei F (2015) Antibacterial coatings: Challenges, perspectives, and opportunities. *Trends in Biotechnology* 33(11):637-652.

Payment P, Trudel M, Pavilanis V (1978) Evaluation de l'efficacité de la technique d'adsorption-élution du poliovirus 1 sur filtres en fibres de verre: application à l'analyse virologique de 100 ml à 1000 l d'eau. *Revue canadienne de microbiologie* 24(11):1413-1416.

The issue number or description are abridged in the language of the document (e.g., 2<sup>nd</sup> ed.) and placed after the title.

American Psychological Association (2010) Publication Manual of the American Psychological Association. 6<sup>th</sup> ed. American Psychological Association, Washington, DC, 500 p.

Esping-Andersen G (2007) Les trois mondes de l'État-providence: essai sur le capitalisme moderne. 2<sup>e</sup> éd. Presses universitaires de France, Paris, 310 p.

The place of publication is the location of the publisher's main offices.

Ouellette FR, Joyal R & Hurtubise R (Eds.) (2005) Familles en mouvance: Quels enjeux éthiques? Presses de l'Université Laval, Québec, 399 p.

Website URLs can quickly become invalid. As a result, it is essential that URLs be followed by the site access date.

Université Laval (2013) Vers un campus carboneutre. Université Laval, Québec <http://www2.ulaval.ca/developpement-durable/vers-un-campus-carboneutre.html> (Accessed March 26, 2014).

Lengthy URLs can be replaced by addresses simplified using online shortening tools (e.g., tinyurl.com, bit.ly, goo.gl):

Université Laval (2013) Vers un campus carboneutre. Université Laval, Quebec. <http://goo.gl/FuFQJj> (Accessed March 26, 2014)

It is necessary to distinguish patents which have an issue date (zone 45 in the original document), from patent applications which do not have this zone. The country in which the patent has been granted must also be indicated:

Cisneros I (2009) Method for extracting oil from plant material. US Patent 7,507,869 (United States) 24 March 2009.

Articles still in the process of formal publication, but already available online must be cited with the mention *in press* instead of the year:

Ayotte Y, Bilodeau F, Descoteaux A, Laplante SR (in press) Fragment-based phenotypic lead discovery: Cell-based assay to target Leishmaniasis. ChemMedChem 10.1002/cmdc.201800161

Standards have a version number:

ASTM International. (2012). Standard Practice for Sampling and Procurement Testing of Magnetic Materials. ASTM A34/A34M - 06(2012) Standard. [http://www.astm.org/cgi-bin/resolver.cgi?A34A34M-06\(2012\)](http://www.astm.org/cgi-bin/resolver.cgi?A34A34M-06(2012))

For more examples, see APPENDIX V.

## 9 IF YOU NEED ASSISTANCE

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If you need additional information or assistance, you can contact us by email at the following address: [sdis@inrs.ca](mailto:sdis@inrs.ca)

### 9.1 Workshops

Workshops on the submission process, the use of bibliographical software, and the thesis writing guide are offered at different times and locations. A schedule of the group training sessions is available on the SDIS website: [Workshops schedule](#). Some training sessions are offered in English.

### 9.2 Transformation to PDF/A

For better long-term preservation, it is recommended that you provide your thesis in PDF/A format, but this is not a requirement. Ensure that all figures and tables are clearly readable after transformation.

Some text software (e.g., LaTeX) may interfere with the PDF/A format. Keep in mind that the most important issue is the legibility of the final document.

[More information on PDF/A](#) (French only)

### 9.3 Research integrity

The INRS Graduate and Postdoctoral Studies Department offers this guide to assist you with your academic career. The guide explains what are intellectual integrity, research integrity, copyright, and intellectual property. It invites you to think about the consequences of fraud, plagiarism, and cheating for you and others. INRS wishes to promote an environment free of such undesirable behaviour, which undermines honest acquisition of knowledge and damages the institution's reputation. A university is a world where everyone should be allowed to develop freely in an environment of integrity and intellectual honesty. Intellectual integrity means, among other things, respecting others and their ideas without altering the content of such ideas and, most importantly, acknowledging their contributions, whether such individuals are authors, professors, or fellow students.

[Student guide](#) (English version)

#### **9.4 Graduate studies guide**

During your graduate studies, you will be challenged, you will advance knowledge in your field, and you will pave the way for your professional career. In order to give you a good start, teach you the basics of university research, and help you develop successful methods, INRS has produced a guide to answer your questions and accompany you throughout your stay at the Institute.

[Graduate studies guide](#) (French only).

# APPENDIX I

## USEFUL DOCUMENTS, FORMS (FRENCH ONLY) AND WEBSITES

	Websites			
	IDÉ	INRS	ETE Intranet	SDIS
Graduate studies guide		<u>X</u>		
Supervisor choice form	<u>X</u>	<u>X</u>		
Research subject choice form	<u>X</u>	<u>X</u>		
Co-supervisor choice form	<u>X</u>	<u>X</u>		
MS Word model for thesis or dissertation				<u>X</u>
Confidentiality agreement		<u>X</u>		
Proposal form for evaluation committee members (doctoral exam)	<u>X</u>	<u>X</u>	<u>X</u>	
Authorization form – Article-based Master's thesis Water Sciences only			<u>X</u>	
Authorization form – Article-based doctoral dissertation Water Sciences only			<u>X</u>	
Authorization form – Thesis or dissertation written in English Water Sciences only			<u>X</u>	
Author rights guide		<u>X</u>		
Embargo request form	<u>X</u>	<u>X</u>		
Submission check list				<u>X</u>
Group training session on MS Word model and thesis writing guide				<u>X</u>
PDF/A format				<u>X</u>

## **APPENDIX II**

### **NUMBER OF ARTICLES RECOMMENDED**

For information purposes only (updated 27 June 2018).

#### **Centre Eau Terre Environnement**

##### **Earth Sciences**

- An “article” is a scientific article intended for publication in a peer-reviewed journal
- The student must be the first author of each article and must have played a major, essential and significant role in its preparation
- Requirements and procedures related to the submission of an article-based thesis or dissertation are defined by the Program Committee whose role is to ensure that they are appropriate for a typical research work at that graduate level
- The articles can be published, accepted, or submitted. They must at least be ready for submission. The content and format of an article “ready for submission” is similar to one that is submitted with the exception that it has not yet been submitted

##### **Water Sciences**

- The articles must have been written and submitted for publication after the student has been admitted to his program
- The articles’ scope must correspond to a typical research work for the graduate level. The Program Committee takes this into consideration in order to determine if the journals’ quality is adequate. If not, an additional article will be requested

#### **Centre Énergie Matériaux Télécommunications**

##### **Telecommunications**

- At the doctorate level, the minimum number of articles published is three (3). There is no minimum for the Master’s level
- Articles submitted or in preparation are not accepted
- Articles published in unreliable journals (e.g., predatory) may not be accepted. You should discuss beforehand your choice of journal with your supervisor
- A peer-reviewed and published conference paper is acceptable
- Examined on a case-by-case basis

## **Energy and Material Sciences**

- The student must be the first author of the articles, or one of the first in the case of a broad collaboration. The results presented in the articles must mainly come from the student work
- In the case of collaborative articles with multiple authors, the student contribution to the research and writing of the article must be officially certified in writing by the student supervisor when the thesis or dissertation is submitted
- At the doctorate level, at least one article published or accepted in a peer-reviewed journal
- As in the case of a traditional thesis or dissertation, the supervisor is the final judge about the success of the student to fulfill the requirements of his program
- Can also be accepted as additional articles:
  - An official report of another research centre or a national or international organization
  - Manuscripts submitted to a peer-reviewed journal
  - Articles published in peer-reviewed proceedings of international scientific conferences
  - Articles accepted for publication in such proceedings
- Taking into account the research field or the degree of facility to publish in that field, the number of articles submitted within the thesis or dissertation may vary. According to this, the emphasis is put on the quality of the articles without setting a specific minimum number

## **Centre Armand-Frappier Santé Biotechnologie**

### **Master's in Virology and Immunology**

- A minimum of one article
- The acknowledgment of receipt or acceptance letter from the scientific peer-reviewed journal must be provided
- The article must be a complete publication (intro, M&M, results, discussion) based on the student work
- The student must normally be the first author; if the article has several authors, the contribution of each must be certified in writing (figures and tables must be from the student work)

### **Masters in Experimental Health Sciences**

- One article ready for submission

### **Master's in Applied Microbiology**

- A minimum of one article published or intended for publication in a peer-reviewed journal
- The article must be a complete publication (intro, M&M, results, discussion) mostly based on the student work

- The article can be published, accepted, or submitted
- The acknowledgment of receipt or acceptance letter from the scientific peer-reviewed journal must be provided
- The student must be the first author and must have played a major, essential and significant role in its preparation. If the article has several authors, the contribution of each must be certified in writing

### **Doctorate in Biology**

- No predetermined criteria
- Examined on a case-by-case basis as chosen by the supervisor. The objective is that the dissertation shows some scientific advances in the field

### **Doctorate in Immunology and Virology**

- No predetermined criteria
- Examined on a case-by-case basis as chosen by the supervisor. The objective is that the dissertation shows some scientific advances in the field

## APPENDIX III

### THE INTERNATIONAL SYSTEM OF UNITS

All measurements must be stated using the International System of Units (SI). The imperial system should not be used.

#### International System: quantities and units

**Table 1. SI base units (n = 7)**

BASE QUANTITY		SI BASE UNIT	
Name	Symbol	Name	Symbol
Length	$l, x, r, \dots$	Metre	m
Mass	$m$	Kilogram	kg
Time	$t$	Second	s
Electric current	$I, i$	Ampere	A
Thermodynamic temperature	$T$	Kelvin	K
Amount of substance	$n$	Mole	mol
Luminous intensity	$I_v$	Candela	cd

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006).

**Table 2. Examples of coherent derived units in the SI expressed in terms of base units (n = unlimited)**

DERIVED QUANTITY		SI COHERENT DERIVED UNIT	
Name	Symbol	Name	Symbol
Volume	$V$	Cubic metre	$m^3$
Area	$A$	Square metre	$m^2$
Speed, velocity	$v$	Metre per second	m/s
Acceleration	$a$	Metre per second squared	$m/s^2$
Wavenumber	$\sigma, \nu\sim$	Reciprocal metre	$m^{-1}$
Density, mass density	$\rho$	Kilogram per cubic metre	$kg/m^3$
Surface density	$\rho_A$	Kilogram per square metre	$kg/m^2$
Specific volume	$v$	Cubic metre per kilogram	$m^3/kg$
Current density	$j$	Ampere per square metre	$A/m^2$
Magnetic field strength	$H$	Ampere per metre	A/m
Concentration <sup>(a)</sup>	$c$	Mole per cubic metre	$mol/m^3$
Mass concentration	$\rho, \gamma$	Kilogram per cubic metre	$kg/m^3$
Luminance	$L_v$	Candela per square metre	$cd/m^2$
Refractive index <sup>(b)</sup>	$n$	One	1
Relative permeability <sup>(b)</sup>	$\mu_r$	One	1

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006).

<sup>(a)</sup> *Strictly speaking*: amount concentration; in the field of clinical chemistry, this quantity is also called substance concentration.

<sup>(b)</sup> Dimensionless quantities, or quantities of dimension one. The symbol "1" for the unit is generally omitted in specifying the values of dimensionless quantities.

**Table 3. Coherent derived units in the SI with special names and symbols (n = 22)**

DERIVED QUANTITY	SI COHERENT DERIVED UNIT <sup>(a)</sup>			
	Name	Special name	Special symbol	In terms of other SI units
Plane angle	radian <sup>(b)</sup>	rad	1 <sup>(b)</sup>	m/m
Solid angle	steradian <sup>(b)</sup>	sr <sup>(c)</sup>	1 <sup>(b)</sup>	m <sup>2</sup> /m <sup>2</sup>
Frequency	hertz <sup>(d)</sup>	Hz		s <sup>-1</sup>
Force	newton	N		m kg s <sup>-2</sup>
Pressure, stress	pascal	Pa	N/m <sup>2</sup>	m <sup>-1</sup> kg s <sup>-2</sup>
Energy, work, amount of heat	joule	J	N m	m <sup>2</sup> kg s <sup>-2</sup>
Power, radiant flux	watt	W	J/s	m <sup>2</sup> kg s <sup>-3</sup>
Electric charge, amount of electricity	coulomb	C		s A
Electric potential difference, electromotive force	volt	V	W/A	m <sup>2</sup> kg s <sup>-3</sup> A <sup>-1</sup>
Capacitance	farad	F	C/V	m <sup>-2</sup> kg <sup>-1</sup> s <sup>4</sup> A <sup>2</sup>
Electric resistance	ohm	Ω	V/A	m <sup>2</sup> kg s <sup>-3</sup> A <sup>-2</sup>
Electric conductance	siemens	S	A/V	m <sup>-2</sup> kg <sup>-1</sup> s <sup>3</sup> A <sup>2</sup>
Magnetic flux	weber	Wb	V s	m <sup>2</sup> kg s <sup>-2</sup> A <sup>-1</sup>
Magnetic flux density	tesla	T	Wb/m <sup>2</sup>	kg s <sup>-2</sup> A <sup>-1</sup>
Inductance	henry	H	Wb/A	m <sup>2</sup> kg s <sup>-2</sup> A <sup>-2</sup>
Celsius temperature	degree Celsius <sup>(e)</sup>	°C		K
Luminous flux	lumen	lm	cd sr <sup>(c)</sup>	cd
Illuminance	lux	lx	lm/m <sup>2</sup>	m <sup>-2</sup> cd
Activity referred to a radionuclide <sup>(f)</sup>	becquerel <sup>(d)</sup>	Bq		s <sup>-1</sup>
Absorbed dose, specific energy (imparted), kerma	gray	Gy	J/kg	m <sup>2</sup> s <sup>-2</sup>
Dose equivalent (ambient, directional, personal)	sievert <sup>(g)</sup>	Sv	J/kg	m <sup>2</sup> s <sup>-2</sup>
Catalytic activity	katal	kat		s <sup>-1</sup> mol

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006).

<sup>(a)</sup> The SI prefixes may be used with any of the special names and symbols, but when this is done the resulting unit will no longer be coherent.

<sup>(b)</sup> The radian and steradian are special names for the number one that may be used to convey information about the quantity concerned. In practice the symbols rad and sr are used where appropriate, but the symbol for the derived unit one is generally omitted in specifying the values of dimensionless quantities.

<sup>(c)</sup> In photometry, the name steradian and the symbol sr are usually retained in expressions for units.

<sup>(d)</sup> The hertz is used only for periodic phenomena, and the becquerel is used only for stochastic processes in activity referred to a radionuclide.

<sup>(e)</sup> The degree Celsius is the special name for the kelvin used to express Celsius temperatures. The degree Celsius and the kelvin are equal in size so that the numerical value of a temperature difference or temperature interval is the same when expressed in either degrees Celsius or in kelvins.

<sup>(f)</sup> Activity referred to a radionuclide is sometimes incorrectly called radioactivity.

**Table 4. Examples of SI coherent derived units whose names and symbols include SI coherent derived units with special names and symbols**

DERIVED QUANTITY	SI COHERENT DERIVED UNIT <sup>(a)</sup>		
Name	Special name	Special symbol	Expressed in terms of SI base units
Dynamic viscosity	pascal seconde	Pa s	$m^{-1} kg s^{-1}$
Moment of force	newton metre	N m	$m^2 kg s^{-2}$
Surface tension	newton per metre	N/m	$kg s^{-2}$
Angular velocity	radian per seconde	rad/s	$m m^{-1} s^{-1} = s^{-1}$
Angular acceleration	radian per sec. squared	rad/s <sup>2</sup>	$m m^{-1} s^{-2} = s^{-2}$
Heat flux density, irradiance	watt per square metre	W/m <sup>2</sup>	$kg s^{-3}$
Heat capacity, entropy	joule par kelvin	J/K	$m^2 kg s^{-2} K^{-1}$
Specific heat capacity, specific entropy	joule per kilogram kelvin	J/(kg K)	$m^2 s^{-2} K^{-1}$
Specific energy	joule per kilogram	J/kg	$m^2 s^{-2}$
Thermal conductivity	watt per metre kelvin	W/(m K)	$m kg s^{-3} K^{-1}$
Energy density	joule per cubic metre	J/m <sup>3</sup>	$m^{-1} kg s^{-2}$
Electric field strength	volt per metre	V/m	$m kg s^{-3} A^{-1}$
Electric charge density	coulomb per cubic metre	C/m <sup>3</sup>	$m^{-3} s A$
Surface charge density	coulomb per square metre	C/m <sup>2</sup>	$m^{-2} s A$
Electric flux density, electric displacement	coulomb per square metre	C/m <sup>2</sup>	$m^{-2} s A$
Permittivity	farad per metre	F/m	$m^{-3} kg^{-1} s^4 A^2$
Permeability	henry per metre	H/m	$m kg s^{-2} A^{-2}$
Molar energy	joule per mole	J/mol	$m^2 kg s^{-2} mol^{-1}$
Molar entropy, molar heat capacity	joule per mole kelvin	J/(mol K)	$m^2 kg s^{-2} K^{-1} mol^{-1}$
Exposure (x- and γ-rays)	coulomb per kilogram	C/kg	$kg^{-1} s A$
Absorbed dose rate	gray per second	Gy/s	$m^2 s^{-3}$
Radiant intensity	watt per steradian	W/sr	$m^2 kg s^{-3}$
Radiance	watt per square metre steradian	W/(m <sup>2</sup> sr)	$kg s^{-3}$
Catalytic activity concentration	katal per cubic metre	kat/m <sup>3</sup>	$m^{-3} s^{-1} mol$

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006).

**Table 5. SI prefixes**

Factor	Name	Symbol
10 <sup>1</sup>	deca	da
10 <sup>2</sup>	hecto	h
10 <sup>3</sup>	kilo	k
10 <sup>6</sup>	mega	M
10 <sup>9</sup>	giga	G
10 <sup>12</sup>	tera	T
10 <sup>15</sup>	peta	P
10 <sup>18</sup>	exa	E
10 <sup>21</sup>	zetta	Z
10 <sup>24</sup>	yotta	Y

Factor	Name	Symbol
10 <sup>-1</sup>	deci	d
10 <sup>-2</sup>	centi	c
10 <sup>-3</sup>	milli	m
10 <sup>-6</sup>	micro	μ
10 <sup>-9</sup>	nano	n
10 <sup>-12</sup>	pico	p
10 <sup>-15</sup>	femto	f
10 <sup>-18</sup>	atto	a
10 <sup>-21</sup>	zepto	z
10 <sup>-24</sup>	yocto	y

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006)

## SI and non-metric units

Non-SI units include those whose use is accepted, should be limited, and should be avoided.

**Units that are accepted without restriction** are divided into two types:

- The first includes **traditional units** that are widely used in everyday life and can plausibly be expected to remain in use indefinitely. These include units of time, plane angle, and area (Table 6).
- The second are **units related to fundamental constants**: for example, the electron has a charge, but a very specific value, which must be determined experimentally; this is the case for the electronvolt, the dalton, and other units (Table 7).

**Units whose use is limited** are also divided into two types:

- **Unit systems developed in specific domains**, rather than units: “natural” units in high energy or particle physics, and “atomic” units in atomic physics and quantum chemistry (Table 7). Since their use with SI units has not been formally accepted, *the final result of a measurement or calculation should always be expressed in the corresponding SI unit.*
- **Units that strictly satisfy commercial, legal, or specialized scientific needs**: nautical miles and knots, in aviation and navigation; pressure in millimetres of mercury, in healthcare (Table 8); the CGS (centimetre-gram-second) system, which still has its followers but has different base units than those of SI (Table 9). Those who use these units must always give their definitions in terms of SI units.

**Units that should be avoided** form a group, which is not explicitly listed. There is no case for using these units in modern scientific and technical work; they include imperial system units and even metric units whose formulation is incorrect in the International System of Units (e.g., micron rather than micrometre).

**Table 6. Non-SI units accepted for use with the International System of Units**

Quantity	Name of unity	Symbol	Value in SI units
Time	Minute	min	1 min = 60 s
	Hour	h	1 h = 60 min = 3600 s
	Day	d	1 d = 24 h = 86 400 s
Plane angle	Degree	°	1° = (π/180) rad
	Minute	'	1' = (1/60)° = (π/ 10 800) rad
	Second	"	1" = (1/60)' = (π/ 648 000) rad
Area	Hectare	ha	1 ha = 1 hm <sup>2</sup> = 10 <sup>4</sup> m <sup>2</sup>
Volume	Litre	L or l	1 L = 1 l = 1 dm <sup>3</sup> = 10 <sup>3</sup> cm <sup>3</sup>
Mass	Tonne	t	1 t = 10 <sup>3</sup> kg

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006).

**Table 7. Non-SI units whose values in SI units must be obtained experimentally**

Quantity	Units accepted for use with the S	Symbol	Value in SI units
Energy	electronvolt	eV	1 eV = 1.602 176 53 × 10 <sup>-19</sup> J
Mass	dalton	Da	1 Da = 1.660 538 86 × 10 <sup>-27</sup> kg
	unified atomic mass unit	u	1 u = 1 Da
Length	astronomical unit	ua	1 ua = 1.495 978 706 91 × 10 <sup>11</sup> m

<b>Natural units ...</b>			
speed	... of speed	$c_0$	299 792 458 m/s ( <i>speed of light in vacuum</i> )
Action	... of action	$\hbar$	1.054 571 68 × 10 <sup>-34</sup> J s ( <i>reduced Planck constant</i> )
Mass	...of mass	$m_e$	9.109 3826 × 10 <sup>-31</sup> kg ( <i>electron mass</i> )
Time	... of time	$\hbar/m_e c_0^2$	1.288 088 6677 × 10 <sup>-21</sup> s

<b>Atomic units...</b>			
Charge	...of charge	$e$	1.602 176 53 × 10 <sup>-19</sup> C ( <i>elementary charge</i> )
Mass	...of mass	$m_e$	9.109 3826 × 10 <sup>-31</sup> kg ( <i>electron mass</i> )
Action	...of action	$\hbar$	1.054 571 68 × 10 <sup>-34</sup> J s ( <i>reduced Planck constant</i> )
Length	...of length, bohr	$a_0$	0.529 177 2108 × 10 <sup>-10</sup> m ( <i>Bohr radius</i> )
Energy	...of energy, hartree	$E_h$	4.359 744 17 × 10 <sup>-18</sup> J ( <i>Hartree energy</i> )
Time	...of time	$\hbar/E_h$	2.418 884 326 505 × 10 <sup>-17</sup> s

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006).

**Table 8. Other non-SI units that satisfy special needs (especially legal and commercial ones)**

Quantity	Name of unit	Symbol	Value in SI units
Pressure	bar	bar	1 bar = 0.1 MPa = 100 kPa
	millimetre of mercury	mmHg	1 mmHg = 133.322 Pa
Length	ångström	Å	1 Å = 0.1 nm = 100 pm = 10 <sup>-10</sup> m
Distance	nautical mile	M	1 M = 1852 m
Area	barn	b	1 b = 100 fm <sup>2</sup> = (10 <sup>-12</sup> cm) <sup>2</sup>
Speed	knot	kn	1 kn = (1852/3600) m/s
Logarithmic ratio quantities	neper	Np	
	bel	B	
	decibel	dB	

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006).

**Table 9. Non-units associated with the CGS and the CGS-Gaussian system of units; they must be defined in SI units**

Quantity	Name of unit	Symbol	Value in SI units
Energy	erg	erg	1 erg = $10^{-7}$ J
Force	dyne	dyn	1 dyn = $10^{-5}$ N
Dynamic viscosity	poise	P	1 P = 1 dyn s cm <sup>-2</sup> = 0.1 Pa s
Kinematic viscosity	stokes	St	1 St = 1 cm <sup>2</sup> s <sup>-1</sup> = $10^{-4}$ m <sup>2</sup> s <sup>-1</sup>
Luminance	stilb	sb	1 sb = 1 cd cm <sup>-2</sup> = $10^4$ cd m <sup>-2</sup>
Illuminance	phot	ph	1 ph = 1 cd sr cm <sup>-2</sup> = $10^4$ lx
Acceleration	gal	Gal	1 Gal = 1 cm s <sup>-2</sup> = $10^{-2}$ m s <sup>-2</sup>
Magnetic flux	maxwell	Mx	1 Mx = 1 G cm <sup>2</sup> = $10^{-8}$ Wb
Magnetic flux density	gauss	G	1 G = 1 Mx/cm <sup>2</sup> = $10^{-4}$ T
Magnetic field	œrsted	Oe	1 Oe $\hat{=}$ $(10^3/4\pi)$ A m <sup>-1</sup>

Adapted from the Organisation intergouvernementale de la Convention du Mètre brochure (2006).

## APPENDIX IV WRITING CONVENTIONS

### Style of emphasis

**Italics** are used to:

- Highlight foreign words
- Draw attention to certain bibliographic information
- Indicate quantities, values, units and symbols based on the conventions in effect

**Bold style** is useful in texts where the reader has to look for specific information. Underlining should be avoided as much as possible.

### Digits, numbers and symbols

Numerical values are expressed according to the International System of Units (SI). An overview of the accepted conventions is given in Appendix II. In the event you must diverge from this style, the sole requirement is to remain consistent throughout the document.

NOTATION OF QUANTITIES, UNITS, AND SYMBOLS		
Applicable conventions	Examples	Unacceptable examples
<b>For quantities</b>		
Generally a single letter in italic font	<i>x</i> , <i>t</i> (distance, time)	x, t
Further information in subscript, superscript, or in parentheses	$x_0$ , $t_{max}$	
<b>For units</b>		
Nouns with initial lowercase letter, even when derived from proper nouns	pascal	Pascal
Symbols in roman (upright) type	m, s (metre, seconde)	<i>m</i> , <i>s</i>
1 <sup>st</sup> letter of a symbol capitalized when derived from a proper noun	Pa Ω (omega, pour ohm)	pa ω
Do not mix nouns and symbols	newton per kilogramme	newton per kg
No abbreviations in place of symbols	s, min, cm <sup>3</sup> , m/s	sec, mn, cc, mps
No period except at the end of a sentence	cm	cm.
Symbols remain singular	9 cm	9 cms
Always preceded by a non-breaking space	30 cm 30,2 °C 30.2 °C	30cm 30,2°C 30,2° C
<b>Exceptions</b>		
Sexagesimal units of an angle	40° 16' 25"	40 ° 16 ' 25 "
Degrees of alcohol	90°	90 °
Litre symbol, either "l" or "L"	1 L = 1 000 ml l = 1 000 ml	

MULTIPLICATION AND DIVISION NOTATION		
Applicable conventions	Examples	Unacceptable examples
<b>With quantity symbols</b>		
Multiplication marked by space or no space, “ . ” sign or “ x ” sign	$ab, a b, a \cdot b, a \times b$	
Division marked by oblique, horizontal line, negative superscript	$a/b, a b^{-1}$	
<b>With unit symbols</b>		
Multiplication marked by space, “ . ” sign	m s or m·s	ms (milliseconde)
Division marked by oblique, horizontal line, negative superscript <i>but never more than one oblique (to avoid ambiguity)</i>	$m/s, m \cdot s^{-1}$ $\dot{A}/(m\ s)$ or $A \cdot m^{-1} \cdot s^{-1}$ $\dot{A}/(m/s)$ or $A \cdot s \cdot m^{-1}$	A/m/s A/m/s
<b>With quantity values and numbers</b>		
As with unit symbols but no “ . ” sign	$(53\ m/s) \times 10,2\ s$ $(53\ m/s)(10,2\ s)$ $25 \times 60.5$	$(53\ m/s) \cdot 10,2\ s$ $(53\ m/s) \cdot (10,2\ s)$ $25 \cdot 60.5$

PREFIX NOTATION FOR MULTIPLES AND SUBMULTIPLES OF UNITS		
Applicable conventions	Examples	Unacceptable examples
In roman (upright) and lowercase type prefixes attached without space or hyphen with a single prefix	Milli Milliseconde Nanometre $10^{-6}\ kg = 1\ mg$	Milli milli-seconde millimicrometre $1\ \mu kg$ (microkilogramme)
Uppercase symbol for multiples except for da (deca), h (hecto), and k (kilo)	G (giga) kg	g Kg
Lowercase symbol for submultiples	p (pico)	P

VALUE NOTATION		
Applicable conventions	Examples	Unacceptable examples
Period or comma preceded by a zero, between -1 and +1	-0.234 or -0,234	not -.234 or -,234
Optional separation into groups of 3 digits but with spaces only	43279.16829 or 43 279.168 29	43,279.168,29

All number and units that begin a sentence must be written out (ten, not 10). Elsewhere in the text, only numbers greater than ten (10) are written in Arabic numerals. The rest are written out, unless:

- They are part of a series or a list (e.g., page 8; tables 2, 7, 9)
- They are followed by a symbol or a quantity abbreviation (e.g., 8%; 3 cm)

Large numbers are to be written in the language of the document (e.g., thesis in English => Anglo-Saxon names, or dissertation in French => French names):

Noms anglo-saxons	Noms français
Million	Million
Billion	Milliard
Trillion	Billion
Quadrillion	Billiard
Quintillion	Trillion

### Breaking or nonbreaking spaces

In this section, “ ° ” represents a nonbreaking space and “ x ” an alphanumeric character.

Brackets and quotation marks	
No space inside Ordinary space outside	(xx) [xx] {xx} "xx"
Nonbreaking space inside Ordinary space outside	«°xx°»

Punctuation and typographical marks		
Apostrophe, oblique, hyphen	No space before or after	xx'xx xx/xx xx-xx
Period, comma, ellipsis, superscript, semicolon, exclamation mark, question mark	No space before Ordinary space after	xx. xx, xx... xx* xx! xx? xx;
Colon	Nonbreaking space before Ordinary space after	xx°: xx
Dash	Nonbreaking space before Nonbreaking space after	xx - xx
Ampersand	Ordinary space before and after	xx & xx

## Acronyms and trademarks

Acronyms are used only if they must be repeated frequently. They are defined in the first occurrence to avoid ambiguity. Acronym use is not recommended in titles and subtitles.

Trademarks are proper nouns and are written with a capital letter and the ® abbreviation, but both are dropped when terms are used in their generic sense or when the trademark has become a common noun. For instance, write: Aspirin® and Azantac®, but aspirin, ranitidine, cellophane, and thermos.

## Taxonomy and toponymy

In taxonomic nomenclature, class, order, family, and genus names take an initial capital letter. Species names are always written with an initial lowercase letter, including proper nouns. For example:

- *Cypripedium* [genus] *parviflorum* [species] var. *planipetalum* [variety]
- the American elm, *Ulmus americana*

All geographical toponyms used in the text must appear on a locator map unless the place named is well known (e.g., Montreal).

## APPENDIX V

### EXAMPLES OF DIFFERENT TYPES OF DOCUMENTS

<b>Books (monographs)</b>	
Definition	A monograph is a complete non-periodical publication which may comprise one or more volumes (book, report, etc.).
EndNote model	Book
Example	Soutter M, Mermoud A, Musy A (2007) <i>Ingénierie des eaux et du sol: processus et aménagements</i> . Presses polytechniques et universitaires romandes, Lausanne. 294 p.

<b>Collective works</b>	
Definition	Should be used if the authors have compiled chapters written by a group of other authors.
EndNote model	Edited Books
Example	Ouellette FR, Joyal R, Hurtubise R (Eds.) (2005) <i>Familles en mouvance: Quels enjeux éthiques?</i> Presses de l'Université Laval, Québec. 399 p.

<b>Book chapters</b>	
Definition	Chapters of a monograph treated as independent entries.
EndNote model	Book Section
Examples	<p>Augustin G, Rao Q, Denidni TA (2016) Low-profile antennas. <i>Handbook of Antenna Technologies</i>, Chen ZN, Liu D, Nakano H, Qing X, Zwick T (Eds.) Springer, Singapore Vol 2 pp. 1531-1564.</p> <p>Bertrand-Krajewski JL, Fletcher TD, Mitchell VG (2007) Spatial and temporal scale considerations. <i>Data Requirements for Integrated Urban Water Management</i>, (Urban Water Series - UNESCO-IHP: 1), Fletcher TD &amp; Deletic A (Eds.) CRC Press, Boca Raton. pp. 45-64.</p>

<b>Conference papers</b>	
EndNote model	Conference Proceedings Conference Paper
Example	Zarifi K, Abuthinien M, Ghrayeb A, Affes S (2009) Relay selection schemes for uniformly distributed wireless sensor networks. IEEE Wireless Communications and Networking Conference, WCNC. (Budapest, April 5-8, 2009), p #4917942.

<b>Journal articles</b>	
Note	The title of the journal should be written in full, not abbreviated.
EndNote model	Journal article
Example	Ben Rebah F, Prevost D, Yezza A, Tyagi RD (2007) Agro-industrial waste materials and wastewater sludge for rhizobial inoculant production: A review. <i>Bioresources Technology</i> 98(1):3535-3546.

<b>Theses and dissertations</b>	
EndNote model	Thesis
Examples	<p>Constant P (2008) <i>Étude du cycle biogéochimique du dihydrogène et du mercure en utilisant une approche intégrée</i>. Doctor of Philosophy (Ph.D.) in Biology (Université du Québec, Institut national de la recherche scientifique, Québec). 215 p. <a href="http://espace.inrs.ca/170">http://espace.inrs.ca/170</a></p> <p>Miletti T (2001) <i>L'interaction entre les leucocytes et les coronavirus humains</i>. Master of Science (M.Sc.) in Virology and Immunology (Université du Québec, Centre Armand-Frappier Santé Biotechnologie). xiii, 104 p.</p>

<b>Patents</b>	
Definition	Note that a patent application is not a patent. A patent always has an issue date (zone 45 in the official document). A patent application can be cited but with the indication Patent application not Patent.
EndNote model	Patents
Examples	<p>Katagiri G-I (2015) Resin volume reduction processing system and resin volume reduction processing method. US Patent 9040767 (United States) May 26, 2015.</p> <p>Wu H, Hatzigeorgiou S, Tremblay M, Stoute B (2018) Calibration system and method for optimizing leakage performance of a multi-port amplifier. US Patent Applications 2018/0183397 A1 (United States) 12/22/2017.</p>

<b>Official documents and reports</b>	
Definition	Official documents are issued by a government or an international organization without a clearly established individual author. As a result, the author name is replaced by the level of government in charge of the document, followed by the name of the ministry or administrative division, or by the name of the organization and the administrative division.
EndNote model	Book
Examples	Montréal. Service de l'environnement (2003) <i>Plan d'action vert pour le Vieux-Montréal</i> . Montréal, Canada, 64 p.

<b>Official documents and reports</b>	
	<p>United Nations. United Nations Environment Programme (2009) <i>Mongolia Assessment Report on Climate Change 2009</i>. United Nations, New York. 228 p: <a href="http://www.unep.org/pdf/MARCC2009_BOOK.pdf">http://www.unep.org/pdf/MARCC2009_BOOK.pdf</a> (Accessed May 28, 2010)</p> <p>US EPA (2013) <i>Projected Emission Reductions Overstated and Buy American Requirements Not Met Under EPA Award to the Tennessee Department of Transportation</i>, Report No. 13-R-0321. US Environmental Protection Agency, Washington.</p>

<b>Newspaper articles</b>	
Note	Publication date must include day and month.
EndNote model	Newspaper Article
Example	Lemieux LG (2004) La Société du 400 <sup>e</sup> , l'INRS et la CCNQ publieront un livre sur Québec et sa région. <i>Le Soleil</i> (Québec), La Capitale et ses régions, January 8, 2004, p. A10

<b>Web pages and other online resources (e.g., data set)</b>	
Notes	<p>If the publication date is not clearly indicated, use 1) the copyright date OR 2) the date of the last update, OR as a last resort, 3) the page access date.</p> <p>If the title of the web page is not well defined, use what most clearly resembles the title in the body of the page.</p> <p>Also useful for files in open databases.</p> <p>Make sure that URL is permanent.</p>
EndNote model	Web page
Examples	<p>Environnement Canada (2007) <i>Trichloréthylène - Fiche toxicologique</i>. Environnement Canada, Département des eaux intérieures et des écosystèmes aquatiques, Ottawa, <a href="http://www.ec.gc.ca/dee/toxihelp/26374.php">http://www.ec.gc.ca/dee/toxihelp/26374.php</a> (Accessed November 13, 2008)</p> <p>US NOAA (2014) <i>NOAA predicts near-normal or below-normal 2014 Atlantic hurricane season</i>. National Oceanic and Atmospheric Administration, Washington, DC. <a href="http://goo.gl/tPrQQc">http://goo.gl/tPrQQc</a> (Accessed July 2, 2014)</p> <p>In-text citation: (Chemspider, 2018)            In bibliography:            Chemspider (2018) <i>Citric Acid</i>. Royal Chemistry Society, <a href="http://www.chemspider.com/Chemical-Structure.305.html?rid=94b7b2b9-cd8f-4f5f-bb62-6deff9763a91">http://www.chemspider.com/Chemical-Structure.305.html?rid=94b7b2b9-cd8f-4f5f-bb62-6deff9763a91</a> (Accessed June 7, 2018)</p> <p>In-text citation: (Pubchem, 2018)            In bibliography:            Pubchem (2018) <i>Caffeine</i>. <a href="https://pubchem.ncbi.nlm.nih.gov/compound/2519">https://pubchem.ncbi.nlm.nih.gov/compound/2519</a> (Accessed June 7, 2018)</p>

<b>Audiovisual material</b>	
Note	Mention the support type (e.g., DVD).
EndNote model	Audiovisual material
Example	Monderie R, Desjardins R (1999) <i>L'Erreur boréale</i> . National Film Board of Canada, Montréal, DVD 55 min.

<b>Maps and aerial photos</b>	
Note	Mention the scale and, if available, the series number.
EndNote model	Map
Example	Avramtchev L, Lebel-Drolet S (1979) Carte des gîtes minéraux du Québec région de l'Abitibi. Ministry of Energy and Natural Resources, Quebec (1:250000)

<b>Google Maps</b>	
Note	Use this model for maps only. For satellite images, use the model for Google Earth below.
EndNote model	Map
Examples	<p>GoogleMaps (June 6, 2018) <i>Parc national du Mont-Mégantic, Québec, Canada</i>. <a href="https://www.google.com/maps/place/Parc+national+du+Mont-M%C3%A9gantic/@45.423286,-71.1259421,15z/data=!4m5!3m4!1s0x0:0x7e53a05c903ea2d0!8m2!3d45.423286!4d-71.1259421">https://www.google.com/maps/place/Parc+national+du+Mont-M%C3%A9gantic/@45.423286,-71.1259421,15z/data=!4m5!3m4!1s0x0:0x7e53a05c903ea2d0!8m2!3d45.423286!4d-71.1259421</a></p> <p>GoogleMaps (June 6, 2018) <i>Parc national du Mont-Mégantic, Québec, Canada</i>. <a href="https://goo.gl/bmXcy5">https://goo.gl/bmXcy5</a></p>

<b>Google Earth</b>	
Note	Map editor and version (if available), year of the data used for the map, image details: location, coordinates, elevation, data source (if available), map consultation date, URL address.
EndNote model	Map
Examples	<p>Google Earth Pro 7.3 2016 (ou 29/01/2016). <i>Kilauea, Hawaii</i> 19° 24' 22.35' 'N, 155° 17' 01.15" W, elevation 1031 m, altitude 2.19 km, 3D map (June 6, 2018), <a href="https://www.google.com/earth/index.html">https://www.google.com/earth/index.html</a></p> <p>Google Earth Pro 7.3 (29/01/2016). <i>Wood Buffalo Estates, Fort McMurray, Alberta, Canada</i> 56° 72' 31.08" N, 111° 27' 58.23" W, elevation 360 m, altitude 1.05 km, 3D map, DigitalGlobe (June 6, 2018), <a href="https://www.google.com/earth/index.html">https://www.google.com/earth/index.html</a></p>

<b>Regulations, bills or laws</b>	
Note	Useful information: <a href="http://web5.uottawa.ca/www2/rl-lr/eng/legal-citations/1_13-fed_regulations.html">http://web5.uottawa.ca/www2/rl-lr/eng/legal-citations/1_13-fed_regulations.html</a>
EndNote model	Legal Rule or Regulation
Example	Government of Canada (2007) <i>Asbestos Products Regulations</i> , Statutory Orders and Regulations (SORs), 260, art 5

## APPENDIX VI OPTION A

### Unified bibliography at the end of the document

This method has the advantage of being more flexible during writing, especially when several authors are involved. However, it requires editorial work near the end of the process to ensure that the different elements inserted are consistent with one another.

Each article is treated separately during writing and revision by the authors. The version that is to become a chapter should be inserted in the thesis or dissertation **only at the end of the process, just before the initial submission**. This aspect is important, because once the article is inserted in the master document, the chapter version becomes independent from the article version and both will from that point evolve separately. It is thus better to wait as late as possible in the process until all co-author comments have been received and included in order to do this operation only once.

After inserting the article as a chapter in the thesis or dissertation, the body text must be revised to ensure that all in-text citations are formatted according to the Endnote style *INRS-Sciences et technologies*, especially if a numeric style was used in the article instead of the INRS “author-date” style.

For a unified bibliography, use the MS Word model for traditional theses.

### Procedure:

- Write each article in an independent MS Word file
- Just before initial submission, turn off Instant Formatting on the Endnote menu



- Delete the bibliography at the end of the article
- Copy and paste the article at the right place in the master document of the thesis
- Choose Endnote style *INRS-Sciences et technologies*
- Revise the text to adjust the citations and their sentences
- Once all the chapters have been inserted, use Endnote to generate the bibliography (Update Citations and Bibliography)

- Revise the chapter headings and text styles to conform to the template
- Ensure that the table of contents and lists of figures and tables have been automatically adjusted by MS Word

## APPENDIX VII OPTION B

### Multiple bibliographies: one per chapter/article

In this method, each chapter contains an independent bibliography, and multiple bibliography styles may be used within the overall document that will be submitted for the thesis. This method is not recommended for traditional theses or dissertations, but it can be advantageous for article-based ones as each chapter's bibliography can remain formatted according to the rules of the journal to which it was submitted. Note, however, that this approach requires great attention to detail, mainly to harmonize the page layout in the final document. The procedure described below applies to theses and dissertations in which Endnote is used to manage the references.

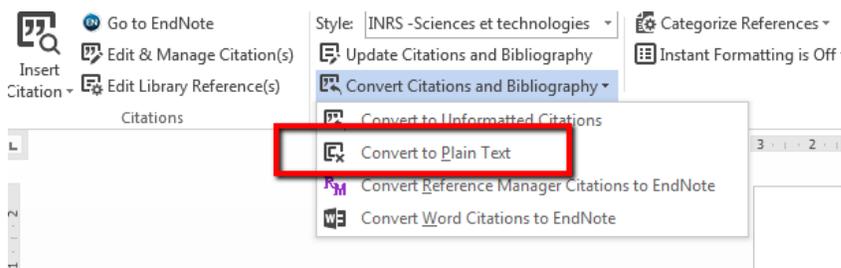
A copy of each independent article/chapter must be kept along with a master version of the combined document until the end, when the final submission version has been corrected.

For each section (chapter/article) of the document, bibliographies of different styles will be generated by Endnote. Save each section as an independent file. Once the chapter/article has been inserted in the master document, adjust page numbers and fonts according to the template used.

Note: It is strongly recommended that the articles/chapters be inserted **at the end of the process, just before submission**, in order to do this operation only once.

### Procedure:

- Write each article with its respective bibliography in an independent MS Word file
- Just before initial submission, remove Endnote codes from each article:



- Save a version of the article WITH the Endnote codes and a version WITHOUT. The version WITHOUT will be the one inserted in the master document. The version WITH codes can be used for article updates independently from the thesis (see note above)

- In the master document, insert a page break after the title page of each chapter/article to be inserted
- Copy and paste the article at the right place in the master document
- Revise the text to adjust the citations and their sentences
- Adjust page numbers, fonts, margins, and line spacing to harmonize with the rest of the document
- Revise chapter headings and text styles to conform to the template (consult thesis guide if the title is very long)
- **Note:** You will have to adjust figure and table numbering manually and shorten their titles to ensure that they appear correctly in the table of contents and the figure and table lists
- Once the article has been added, you will not be able to add or remove any reference in that section without having to restart the fusion of the document process from the beginning. It is thus important to do this operation only once **at the end** AND to save a copy of the master document and copies of each article/chapter in independent files