

A Guide to

Intellectual Property

**for Graduate Students
and Postdoctoral Scholars[©]**



Canadian Association for Graduate Studies

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I. Introduction

“If you read only one part of this document, make it this one.”

As a graduate or postdoctoral researcher, you are an active scholar: you express ideas in a valuable and original manner, conduct research that leads to novel and important findings, or invent new and different ways of building things. All of these endeavours have an intellectual property component that belongs to you, partly or wholly, and may be protected.

However, the conditions and circumstances in which this research is undertaken can vary widely. Research can be undertaken at different universities; it can be funded in a variety of ways from a variety of different sources. Your role as a researcher can depend on your working relationship with your supervisor and his or her research. All of these variables can influence the degree to which your stake

way they can own physical property. An owner of IP can control and receive payment for its use, so IP has value in the marketplace. There are four main types of statutory IP protection:

- 1.

[section II](#)). Policies can vary from institution to institution, so it is imperative to check with your university's Office of Technology Transfer or equivalent. In some Canadian Universities these offices are called the university Industry Liaison Office (UILO). Offices of Technology Transfer or Intellectual Property Management Offices, as they are also known, have been established at most research intensive universities. They provide advice and services to the university community in order to facilitate the protection and commercialization of intellectual property.

In addition to the laws related to intellectual property and university policies, conventions or local customs should be acknowledged and may apply. For example, customs may be followed regarding the recognition of individuals as co-authors in an article or paper presented at a conference. Different rules apply to patents since the Law requires that all inventors having contributed creatively to the claims of the patent be listed on it.

How are intellectual property rights determined?

There are three main variables in the equation that determines the shape your intellectual property rights will take: conventions of your discipline, Canadian law that deals with forms of intellectual property and university regulations. In what follows, these three factors are explored in turn.

II. Conventions of Disciplines

The conventions of your particular discipline can influence intellectual property rights to the extent that they may determine the degree of acknowledgment you are accorded for participation in a project or published article.

Conventions about what criteria define a joint author vary among disciplines. The narrowest definition comes from copyright law and applies to collaborations in literary and artistic works in some of the humanities. There, a "joint author" is technically someone who has collaborated on a work in which the contributions of the various authors are not distinct from one another. In this model, only contributors to the *form or expression* of the work qualify; those supplying ideas normally do not. If each person's contribution is distinct (e.g., contributors of entries to an encyclopedia), the work is a "collective work" and each author has copyright to his or her individual contribution.

However, in the physical and life sciences, collaboration and teamwork are common. Indeed, a student's research may be guided by a team or committee. Contributors to the original ideas in a project are typically given the right to joint authorship of publications that report on the results of the research. As a guideline, co-authorship should be recognized only where the individuals have participated in a significant way in at least two of the following aspects of the research:

- conception of idea and design of experiment,
- actual execution of experiment or hands-on lab work,
- analysis and interpretation of data, and/or
- actual writing of the manuscript.

Rights to senior or first authorship can be difficult to resolve. In the humanities and social sciences the student is often the only author of the published work that reports on his or her thesis research. In the physical and life sciences, students are frequently given first authorship on one or more of the publications arising from their thesis research. The conventions of your discipline provide you with a template for determining questions pertaining to accreditation and authorship.

It is important that you and your supervisor or the researcher with whom you are collaborating establish at the outset what the

III. Protection Governed by University Regulations

In most cases the initial ownership of intellectual property resides with the creator of that intellectual property, but often these rights are assigned under university policy. Policies with respect to IP vary at different institutions and all readers are encouraged to review the policy of their institution relating to ownership, obligation to disclose, sharing proceeds from commercialization and conflicts of interest.

Traditionally, universities in North America have allowed their faculty members to retain their copyright in literary, artistic and musical works. However, the regulations governing the university's involvement with and entitlement to other research can be specific to the institution you are attending. It is therefore advisable to consult university policy, the Intellectual Property Management Office, or other similar facility to clarify your institution's policies.

Regulations can vary from institution to institution and the details of these variable policies often govern the particulars of processes like patent assignation. These policy particularities can affect your portion of the proceeds accruing from a patented invention as well as your responsibilities for the patenting, marketing and licensing of this invention. If you are pursuing research that may have a patentable invention as its outcome, you should familiarize yourself with university policies on this matter as early as possible.

Some issues governed by university policy include:

i. Shared ownership

You and a fellow student, researcher, post-graduate or supervisor may have joint property rights to a patentable invention or to works protected by copyright. Consult your university's policy concerning shared ownership of intellectual property through the Intellectual Property Management Offices or Offices of Technology Transfer. See also [section VI](#) of this document.

ii. Access to data

In many universities, data collected under research projects funded by the federal or provincial governments is considered to belong to the university. Students cannot automatically expect exclusive ownership of data gathered for research projects performed under the auspices of a given institution. Students should inquire into university policy governing the rights to research data. This is also an issue that can be broached with one's supervisor: students should make an agreement with their supervisor that makes clear what data they can take with them or access once they leave the university.

iii. Courseware

Be aware of university policy relative to courseware. As graduate students, you may have occasion to develop courseware (Powerpoint slides, overheads, handouts, and other instructional materials) for a professor in either a paid or an unpaid capacity. The university and/or the professor may claim the rights to these materials: you may not be able to use them for you own purposes later in your career. In addition to the university's intellectual property policy, the professorial union may have policies regarding this issue as well. For other information on intellectual property developed as a university employee see

initially a confidential disclosure to the Patent Office which, in Canada, becomes a non-confidential disclosure to the public 18 months later. A patent grants to the applicant the exclusive right to make, use or sell the claimed invention for a limited period of time. It is worth noting the distinction between inventor and owner: an inventor gets the patent issued in his or her name – once an inventor, always an inventor. The inventor may then assign ownership of the invention to someone else. Inventorship and ownership of an invention are not the same thing. Patents generally have a life, subject to the payment of the prescribed annual fees, of 17 to 20 years depending on the jurisdiction. In Canada, patents have a lifetime of 20 years from the date of initial filing.

What is patentable?

To be eligible for a patent, an invention must fulfill three criteria:

- be novel or new (the same invention cannot already be in existence)
- have utility (i.e. it must be functional and operative)
- be non-obvious to a person skilled in the field of the invention

A patent is granted only for the physical embodiment of an idea or for a process that produces something saleable or tangible. Produc

strictly confidential. A disclosure to an academic colleague may or may not be considered confidential depending on the understanding between the parties. Such understandings

Patent Protection and Foreign Countries

As has been noted above, other countries have significantly different criteria governing patent eligibility that have to be taken into account when making your research and inventions public. A Canadian patent guarantees patent protection throughout Canada only. At present, there are no universal patent laws. Patents need to be applied for in each country to ensure patent protection, although there are international agreements that harmonize this process.

Though this section may seem unnecessary, it is important to note that graduate students often travel to foreign institutions and countries as doctoral students, postdoctoral fellows or visiting research students. Inventions may be made abroad or inventions made in Canada may have international repercussions and commercial potential. In the spirit of having graduate students as informed as possible of their IP rights and responsibilities, the following provides a basic gloss of international patent agreements.

The Paris Convention Treaty of 1887 facilitates the filing of applications in all member nations. It states that if a patent is filed in one member nation, and other applications are filed in the other member nations within one year of the first application, all such applications will be accorded the filing date of the first application. This is very important when considering the effect of publication in a scientific or other journal on a foreign patent application. In other words, if you have filed for patent protection in Canada you are eligible for patent protection in other countries as long as you respect the time prescription to apply for patent protection in other member nations. Almost all industrialized countries are signatories to the Paris Convention.

The **European Patent Office** makes it possible to file a single application (in English, French or German) to protect one's rights simultaneously in European member countries (there are currently 30 member countries). A single regional patent is granted but is not effective until it is ratified in each of the National Patent Offices selected by the applicant, who also must pay the appropriate National Fees, translate into the national language, and meet specific national requirements as to form, among other matters.

The **Patent Cooperation Treaty**, to which Canada is a signatory, provides a standardized international filing procedure for many of our principal trading partners including the United States, Japan and most European countries. It offers a relatively inexpensive mechanism for initiating foreign patent protection rights by deferring some of the major patent expenses (such as foreign translation costs) for up to 30 months from the initial patent filing.

It is important to keep in mind that the patenting process is, overall, expensive. Your institution's Office of Technology Transfer will help in identifying both the most appropriate patent agent for your invention and the most suitable protection strategy.

V. Variables

i. Support by the means of a fellowship, scholarship or research grant

The relationship between funding and intellectual property rights depends on (a) who the funding body is, and (b) what the terms and conditions of funding are.

Not all funding bodies are the same. Some public funding bodies such as the federal granting councils –Natural Sciences and Engineering Research Council of Canada (NSERC), Canadian Institutes of Health Research (CIHR), and Social Sciences and Humanities Research Council of Canada (SSHRC) – attach no intellectual property claims to the research they fund. Other organizations, such as some charitable associations or foundations or provincial Centres of Excellence (e.g., the Heart and Stroke Foundation or Materials and Manufacturing Ontario) may claim either licensing rights or a share of royalties. Still other organizations, notably companies, do attach intellectual property claims to their support of university research or of fellowships or scholarships for students. Students must consult with their Intellectual Property Management Office or equivalent before signing any such agreements.

To ascertain which of these conditions apply, you should be aware of which organization is funding the research you do and what ownership and license rights the organization has to the results of your work.

If the research support is in the form of a contract, you may be asked to sign an agreement which indicates that you are aware of the intellectual property terms and conditions of the funding and that you agree to abide by them. If the research support is in the form of a grant, you should ask your supervisor about terms and conditions, particularly if you are engaged in doing research for a thesis.

ii. Employee status

Under the applicable legislation, intellectual property created by an employee in the course of his or her employment is deemed to belong to the employer unless there is an agreement providing otherwise. University policies modify the application of this general principle, however, the degree to which they do and how can vary depending upon the institution you attend. It is therefore advisable that you contact your institution's Intellectual Property Management Office or equivalent body to determine how these regulations apply to your specific situation.

For instance, the intellectual property policies at certain universities dictate that intellectual property created by university employees in the course of their employment is the university's property only if the work or the invention was created at the *direction* of the employee's supervisor. Even if it was not created at the direction of the employee's

supervisor, the intellectual property may still be subject to the university's policy on patentable inventions; rights and any commercial revenues may have to be shared between the inventor and the university.

Sometimes it is unclear to students whether or not they are university employees. There are some important indications. First, do you have a university employee number? Second, are you contributing to university employee benefit plans? If the answer to either of these questions is "yes," then you are *probably* a university employee. However, the regulations that determine one's status as an employee of the university and what the repercussions of this status are for intellectual property rights can vary depending on your institutional affiliation. Certain categories of graduate employment such as research assistants and graduate assistants may or may not share in intellectual property rights and authorship. Because of the importance of one's characterization as an employee, it is essential that you clarify your status prior to undertaking any work that could lead to the creation of any kind of intellectual property.

VI. Relationship to Supervisor and His/Her Research

The role of a supervisor varies in different fields of study. This may have an impact on the ownership of intellectual property.

i. Co-authorship

Attribution of authorship is the most common problem area for graduate student intellectual property issues. Your university normally will have a policy that sheds light on this important issue.

In some fields, such as the humanities and social sciences, it is normally expected that students will receive guidance from their supervisors, but generate their own ideas, do their own research, and seek out their own financial support. The supervisor acts as a mentor, "resource person", and/or consultant, but less often as a full collaborator. Under these circumstances, the student will have the primary right to the intellectual property produced by his or her research.

In other fields, such as the physical and life sciences, the normal practice is that the student joins an established research group and works collaboratively with the supervisor, other students, postdoctoral fellows, technicians, and/or other employees. In this model, the supervisor has provided the general ideas that guide the research of the group, as well as the resources required to support or conduct the research activities. Protocol that governs attribution of authorship will reflect the model of collaboration within the relevant field. However, as was indicated ae sci6iu 18.4150e0011 Tw 7.8 59 was indictT.14991a3vervis2i3se

Normally, the supervisor, in consultation with his or her co-authors, will make the decision as to when or whether a co-authored manuscript should be submitted for publication and to what journal. A student considering publication of his or her own paper also has a responsibility to consider the intellectual property and co-authorship rights of others who may have been involved in the research.

General criteria for attributing joint authorship are dealt with in the “Conventions of Discipline” category above ([section II](#)).

ii. Co-inventorship

If you are working on a research project that involves a potentially valuable invention as its outcome, the resolution of intellectual property rights is very important. Though authorship status can be important in building one’s reputation as a scholar, status as an inventor can entitle one to proceeds accruing from an invention that one has played a role in creating.

An inventor is a person who has had an original idea or has contributed intellectual input which constitutes an inventive step to one of the claims of the patent. A patent application may be filed naming one or more inventors.

A person who works under the direction of another and does not contribute any original thought to the claimed invention or that has not creatively contributed to the proof of principle or concept **cannot and must not** be named as an inventor. For example, "works as a technician" is not an adequate justification to confirm one’s status as an inventor or co-inventor. *This type of relationship should be delineated clearly in writing before research or development work is undertaken relative to the project or activity.*

Professional collaborators may or may not contribute to the inventive concept being claimed and *great care should be taken in deciding who should be named as an inventor.* It is important to understand that inventorship is a legal matter, not a collegial matter — not all co-authors of a publication are necessarily co-inventors. Collaborators not deemed to be co-inventors can, however, be recognized through some sharing of the net proceeds of the invention. If in doubt as to inventorship, your Intellectual Property Management Office should be consulted and a professional opinion obtained. See also [section IV, part](#)

VII. Dispute Resolution

If a dispute or concern arises with respect to intellectual property and/or co-authorship rights, you and your supervisor should first try to resolve any differences amicably. If discussion with your supervisor does not resolve the problem, you have several avenues of help within your department that can be taken in the following order: your research supervisory committee, the graduate coordinator/director of your department and the chair of the department. You can also seek advice concerning intellectual property management from your university's Technology Transfer office. If the department is unable to find a satisfactory solution, you can seek help from the office of the Dean of Graduate Studies and from the office of the Vice-President or Principal of Research.

VIII. List of Intellectual Property Resources

Canadian Intellectual Property Office (CIPO)

Place du Portage, Phase I

50 Victoria Street

Hull, Quebec K1A 0C9

Tel: (819) 997-1936

Fax: (819) 953-7620

<http://cipo.gc.ca>

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The Canadian Intellectual Property Group

<http://www.research.utoronto.ca/utech/cuipg.html>