

9-9-2011

Western Guide to Professional Master's Programs

Gloria J. Leckie
University of Western Ontario

Follow this and additional works at: <https://ir.lib.uwo.ca/tsc-purple-guides>

 Part of the [Curriculum and Instruction Commons](#), [Educational Assessment, Evaluation, and Research Commons](#), [Educational Leadership Commons](#), [Educational Methods Commons](#), [Higher Education and Teaching Commons](#), [International and Comparative Education Commons](#), and the [Scholarship of Teaching and Learning Commons](#)

Recommended Citation

Leckie, Gloria J., "Western Guide to Professional Master's Programs" (2011). *Purple Guides*. 6.
<https://ir.lib.uwo.ca/tsc-purple-guides/6>

This Book is brought to you for free and open access by the Centre for Teaching and Learning at Scholarship@Western. It has been accepted for inclusion in Purple Guides by an authorized administrator of Scholarship@Western. For more information, please contact tadam@uwo.ca, wlsadmin@uwo.ca.



*Western Guide to
Professional
Master's
Programs*

The University of Western Ontario
Teaching Support Centre



Gloria J. Leckie

Teaching Support Centre Purple Guides



Western Guide to Professional Master's Programs

The University of Western Ontario

Teaching Support Centre

Gloria J. Leckie



© The University of Western Ontario Teaching Support Centre, 2011

TEACHING SUPPORT CENTRE PURPLE GUIDES



Previous

Contents

Next

Library and Archives Canada Cataloguing in Publication

Gloria J. Leckie, 1949 -

Western Guide to Professional Master's Programs
[electronic resource] / Gloria J. Leckie.

(Teaching Support Centre purple guides, ISSN 1916-6885)

Includes bibliographical references.

Also available in print format.

Type of computer file: Electronic monograph in PDF format.

ISBN 978-0-7714-2888-3

1. Degrees, Academic--Canada.
2. Universities and colleges--Canada--Graduate work.
3. Professional education--Canada.
4. Degrees, Academic--United States.
5. Universities and colleges--United States--Graduate work.
6. Professional education--United States.

I. University of Western Ontario. Teaching Support Centre

II. Title. III. Series: Teaching Support Centre purple guides (Online)

LB2385.L43 2011

378.20971

C2011-905516-3



Previous



Contents



Next

Table of Contents

 (Click entries to follow links)

Introduction	1
What is a “Professional” Master’s Degree?	2
<i>Table 1: Typology of Master’s Degree Programs</i>	3
Professional Science Master’s (PSM) Programs	5
Professional Master’s Programs (PMA) in the Social Sciences and Humanities	8
Issues in Planning/Developing PMA or PSM Programs	10
Developing New PMA or PSM Programs at Western	17
Examples of Professional Master’s Programs	17
References and Further Reading	18
Appendix 1	19
Appendix 2	21
Appendix 3	24
Appendix 4	26
About the Author	28



Introduction

Throughout the world, graduate education at the master's level is changing, sometimes dramatically. In Europe, through the Bologna process which aims to harmonize European degrees and make them more compatible with practices elsewhere, master's level education is now clearly distinct from undergraduate education and is recognized with the awarding of separate master's degrees in all disciplines. In the United States, master's education also is evolving: master's programs have been supplanted as the feeder into doctoral program as increasing numbers of institutions permit direct entry to the PhD from undergraduate programs. Thus, once regarded primarily as an entryway to doctoral study, master's education in the United States now has come into its own as a pathway to non-academic careers, with the result that master's level education is huge, and professional master's programs are being developed at a rapid pace. A 2010 report by the Commission on the Future of Graduate Education notes that "over 75% of graduate students are in master's programs, and 90% of the graduate degrees awarded are master's" (2010, 18).

Canada has had a long history of master's education acting as a gateway to doctoral study and relatively few Canadian universities permit direct entry to the PhD from undergraduate programs. In many disciplines within the humanities, social sciences and sciences, a very traditional form of master's education (courses plus thesis) is still the norm in Canada. Nonetheless, Canadian universities are not immune to the changes happening elsewhere in master's education. New forms of master's programs, featuring targeted coursework and streamlined for faster completion, have become evident.

"...the evolution of existing master's program and the development of new programs have accelerated in response to perceived demand and/or needs of non-academic stakeholders. Many of the changes affecting master's program in Canada stem from emerging requirements in the private and public sectors..."

(Canadian Association for Graduate Studies 2006, 15).

As a result, the Canadian Association for Graduate Studies (2006, 18) reported that the period from 1994 to 2003 showed a staggering 70% of master's students were in professionally-oriented degree programs. The greatest enrolment was in Business, Management and Marketing degrees (25%), followed by Education (12%), Engineering (10%), Health and Clinical Sciences (6%), and Public Administration (5%). Also represented were degrees in Architecture, Natural Resources, Legal Studies, Library Science, Recreation/Leisure, Agriculture, Journalism/Communications, and Family/Consumer Studies.



The data clearly show that professionally-oriented master's level programs are the largest area of growth in both Canada and the United States. However, this raises some interesting questions about the nature/characteristics of such degrees, their goals, and their structures. Accordingly, this guide will provide an overview of the terrain of professional master's education in North America.

What is a “Professional” Master’s Degree?

The use of the word “professional” to describe master's degrees is certainly not new. Master's degrees for professional careers have been a feature of North American graduate education for decades. Most large to mid-sized universities have long-established business programs, many of them offering the Master of Business Administration degree, which is considered *de rigueur* for those who want to make their mark in the corporate world. The Master's of Public Administration is the preferred advanced degree for public sector employees, and since at least the mid twentieth century, Library Science master's degrees have been the required qualification for librarians and other information professionals. More recently, master's degrees in Occupational Therapy, Physical Therapy and Speech Pathology have been recognized as a mandatory requirement for practitioners in those fields. Because these types of master's degrees are oriented to producing practitioners within particular fields, there is no doubt that they are considered to be professional programs. The target profession is well understood (e.g. a business manager, an occupational therapist, a librarian) and while there are ongoing changes to these traditional sorts of professions, the key components of those professions and the knowledge required to be a practitioner are nonetheless well understood.

The types of professional master's degrees noted above actually sit on a continuum of master's level education. According to a study conducted by the Council of Graduate Schools (2006, 44), the continuum ranges from those degrees that are strictly **Classical** (courses plus thesis) to those which are more **Applied** in nature, to fully **Professional** degrees.



Table 1: Typology of Master's Degree Programs

Classical	Preparation for doctoral study, stepping stone to PhD. Western examples: Master's programs in Chemistry, English, French, Geography, Nursing, Physics and Sociology.
Classical Applied	Mostly classical with some applied character. Western example: Master's program in Astronomy, which has the option of a Summer research project rather than a thesis.
Classical Applied	Somewhat classical but mostly applied in character. Western examples: Master's with specialization in Migration and Ethnic Relations.
Applied	Focused within one department and upon an area of application; may lead to a specific career track. Western examples: Master's program in Public Administration.
Applied Professional	Mostly applied in character with some professional components. Western examples: Master's programs in Applied Archaeology, Audiology, History (Public History concentration), Occupational Therapy, Physical Therapy, and Speech Language Pathology.
Professional	Program designed to cross discipline boundaries and employment sectors and to include work that develops skills related to workplace needs. Western examples: Master's programs in Engineering Science, Library and Information Science and proposed new Master's in Actuarial Science.

The **Classical** category is perhaps the most universally familiar, representing programs with a certain number of courses and a thesis, intended primarily as preparation for entry into doctoral study. However, the difference between **Applied** programs and **Professional** programs is less clear cut. In fact, many of the older, established professional programs would fall into the **Applied** or **Applied Professional** categories in the table above because the degree is primarily focused upon one area of application within the discipline and is not particularly interdisciplinary. Applied programs emphasize the "application of the fundamentals of a discipline to a specific area of practice (e.g. aging studies programs within sociology)" (Council of Graduate Schools 2006, 43). Usually there is no or very little work outside the program (through internships etc.). Although



the degree may lead to a very specific career track, there is generally no direct relationship to potential employers. Degrees in Library Science, or Occupational Therapy, for example, would fall into the **Applied Professional** or **Professional** category because although the majority of courses may be discipline specific, coursework is not the only means of learning: there are internships or practica and direct connections with employers are common. As well, in the case of the MLIS, specific workplace-related courses (such as Financial Management or Strategic Planning) are an integral part of the program.

Within the new landscape of master's level education, the definition of an applied master's degree stands in contrast to the current understanding of the term "professional". Today, the meaning of a "professional master's degree" is something rather different than the traditional sorts of applied professionally-oriented degree programs noted above. In short, the "new" take on professional degrees aims to educate people to work in areas that are often not clearly identified with one profession. For instance, where do master's graduates in philosophy or biology work? Since there is not one specific career for either philosophers or biologists, they end up working in a variety of positions in government and public or private organizations, in a number of different roles. As well, with advances in technology and innovation, many new types of careers are opening up which are not as well understood or conceptualized as the older, established professions. Therefore, to meet the needs of a rapidly changing society and dynamic workplaces, the "new" professional programs aim to produce graduates who are uniquely placed to meet the needs of very particular and evolving career paths. These new career paths are sometimes in emerging areas such as genetics or nanoscience, and sometimes in areas that previously have not been well served by graduate education, such as fine arts appraisals, or conflict resolution.

To meet the demands of evolving and emerging career paths, today's professional master's degrees have to be more interdisciplinary than older applied degree programs, and have to give students the skills they need to thrive in constantly evolving workplaces. In the arts and social sciences, these kinds of new master's programs are referred to as **Professional Master's Programs, or PMAs**. In the STEM (Science, Technology, Engineering and Mathematics) disciplines, these types of new professionally-oriented master's programs are referred to as **Professional Science Master's, or PSMs**.

A hallmark of the new professional programs is that they usually include "activities and relationships that cross the boundaries between departments and between the university and employers" (Council of Graduate Schools 2006, 43). In other words, the connections to employment agencies (such as institutions, governments, industry, community organizations etc.) are much stronger and deliberate interaction with employers through internships or placements is usually a component of the program. PMA and PSM programs also typically include disciplinary and/or interdisciplinary courses **plus** workplace-oriented courses on topics such as project management, communication skills, team leadership, entrepreneurship and the like (often referred to as the "Plus" courses).



Previous



Contents



Next

Professional Science Master's (PSM) Programs

The growth in professional master's programs is the most rapid in the sciences, where such programs are known as Professional Science Master's (PSM) programs. The *National Professional Science Master's Association* (NPSMA) is devoted to the development and quality of PSM programs and has a comprehensive web site (<http://www.sciencemasters.com/>). PSM degrees are described as:

A Professional Science Master's (PSM) is an innovative graduate degree that typically consists of two years of academic training in an emerging or interdisciplinary area of science, mathematics or technology. The PSM also contains a professional component that may include internships and "cross-training" in business, management and communications. All have been developed in concert with industry and are designed to dovetail into present and future professional career opportunities.

(NPSMA web site 2011)

The PSM degree is meant to supply intermediate-level professionals for the scientific workforce, largely in business and industry. It is a professional rather than a research degree and is intended to be equivalent to a law or business degree for young people who major in the sciences and mathematics as undergraduates. Unlike the typical science and engineering master's degree program, PSMs are not consolation prizes for those who drop out of Ph.D. programs. Instead they are terminal degrees designed in close cooperation with regional industries to prepare applied scientists and mathematicians for work in new and emerging industries.

(National Governors' Association 2006, 3)

The interest in PSM programs has been increasing rapidly since the early 2000s. In 2002, the National Science Foundation in the United States held an invitational meeting on the need for more professional master's education in the Sciences. Speakers at the meeting from a variety of areas in science, technology and engineering noted the same problems, namely that graduates of Master's programs in the Sciences and Engineering "lack essential knowledge (of business





principles or regulatory issues for example) and workplace skills (e.g. the ability to work in teams, communication/presentations skills)... to be of maximum benefit to the company” (Council of Graduate Schools 2006, 14).

In particular, the need for a range of science and extra-science components was identified, to produce students who not only had advanced disciplinary knowledge in science/engineering, but also had

- a working knowledge of business and ethics
- flexible training – able to apply their skills to various areas of the company as needed
- teamwork experience and ability to participate effectively on interdisciplinary teams
- writing and presentation skills
- understanding of basic principles of business, profit motive and related ethical issues
- ability to design and execute experiments with minimal supervision
- ability to prepare technical reports, project plans and regulatory documents
- ability to prepare and present information to a wide variety of constituents (customer, stockholders, general public)

The specific concerns mentioned above were echoed in the National Governors’ Association 2006 brief which noted that there are two problems with respect to meeting the current needs of science and technology workplaces. First, to develop their R&D, science and technology firms previously relied upon PhD graduates in chemistry, biology, physics, computer science etc. However, now R&D efforts are increasingly interdisciplinary and require more business acumen so there is often a mismatch between the graduates that universities are producing and what innovative industries need. Secondly, the PhD is long and costly, meaning that potential job applicants are not in the workforce until into their 30s. The length, cost and competitiveness of the PhD thus discourages those who want to enter the workforce more quickly but find they do not have the credentials. The movement to PSM programs, therefore,

Represents an effective answer to both these problems. It produces quickly and efficiently many of the applied scientists that today’s high-tech industries need. ... the enthusiasm of employers and the rapidity with which the graduates found well-paid jobs suggest that the demand for PSM programs will grow.

(NGA 2006, 2)



The National Professional Science Master's Association website and the Council of Graduate Schools 2006 report both identify the following necessary components of a PSM program:

- a majority of program course work in graduate-level science and/or mathematics;
- interdisciplinary in nature, preparing students for fields such as forensic science, computational chemistry, financial mathematics, and bioinformatics;
- additional coursework in workforce skills such as project management, communication, policy, intellectual property, legal aspects etc.;
- emphasis on the written and verbal communication skills, leadership, and team-building required in professional settings;
- nimble in adjusting to shifting workforce demands and to rapidly changing research strategies and technologies;
- an established advisory committees of local employers to ensure that the curriculum is responsive to regional workforce needs;
- internships or problem-based projects sponsored by employers;
- a capstone team-based project (nearly all programs have this).

7

In addition, some programs allow for subject specialization within the PSM program and/or certificates for the "Plus" courses.

There are currently 240 PSM programs in the United States, Canada and the UK (as of June 2011, Professional Science Master's web site statistics) in areas ranging from Biotechnology, Computational Bioscience, Genetic Counselling, and Nanoscience to Wildland Fire Ecology/Management (as well as many others). Most of the PSM programs are interdisciplinary and some are very specific in orientation, far more specific than would be possible in a traditional Master of Science degree. The programs are generally 1 to 2 years in length.



Previous



Contents



Next

Examples of implemented PSM programs include:

- **Applied Computing (American University)**
- **Biomathematics (Florida State University)**
- **Biotechnology (University of Delaware)**
- **Coastal and Watershed Science (California State University, Monterey Bay)**
- **Food Sciences and Human Nutrition (University of Illinois)**
- **Health Care Informatics (Middle Tennessee University)**
- **Materials and Chemical Synthesis (Illinois Institute of Technology)**
- **Molecular Biotechnology (George Washington University)**
- **Occupational and Environmental Hygiene (University of Massachusetts, Lowell)**
- **Paper Engineering (State University of New York)**
- **Prosthetics and Orthotics (Georgia Tech)**
- **Statistics and Biostatistics (Rutgers University)**
- **Telecommunications Management (University of Maryland)**
- **Zoo/Aquarium Management Science (University of Michigan)**

Professional Master's Programs (PMA) in the Social Sciences and Humanities

With the increase in professional master's programs in the Sciences, the Council of Graduate Schools (CGS) in the United States did a large study of master's programs to determine whether professional master's programs (or PMAs) were becoming more prevalent in the Social Sciences and Humanities. The study examined 350 Master's programs at 70 American universities.

It became readily apparent that there is not always a clear distinction between PMA programs and other types of Master's programs, some of which have some of the same characteristics as PMA programs. This realization led to the development of the continuum illustrated previously in **Table 1: Typology of Master's Degree Programs**.



Previous



Contents



Next

After studying the web site descriptions of the programs in the study, a list of the characteristics of PMA programs was compiled by CGS, including

- offers skills-based courses (marketing, management)
- offers interdisciplinary courses or courses at the boundaries of disciplines
- emphasizes writing and communication skills
- has final project or team experience
- has a required internship
- has an advisory board of industry/government/non-profit employers
- has at least some faculty members with nonacademic experience
- has assessment and quality controls such as accreditation/licensing.

Not all programs have all of these characteristics, but based on this list, it was found that Public Administration programs had the greatest number of these characteristics, while disciplines such as Linguistics and History had the least. Other than Public Administration, Psychology, Communication Studies and Economics were the disciplines most likely to have programs with 4 or more of the characteristics noted above. Only about a third of programs in Geography, Sociology, Anthropology and Political Science had at least three of the characteristics.

Programs which have been designated as PMA programs in the Social Sciences and Humanities are extremely varied, including

- **Applied Behavioral Analysis (University of North Carolina, Wilmington)**
- **Community Health Promotion (Buffalo State College University)**
- **Criminal Justice (Southern Illinois University, Edwardsville)**
- **English as a Second Language (University of Colorado, Boulder)**
- **Human Language Technology (Eastern Michigan University)**
- **Museum Studies (Claremont Graduate University)**
- **Professional Sociology (American University)**
- **Social Documentation (University of California, Santa Cruz)**





Issues in Planning/Developing PMA or PSM Programs

There are a number of unique issues that arise when considering the planning and development of a PMA or PSM program. Many of the points noted below are also covered in the comprehensive 2006 guide to planning PMA/PSM programs (*Professional Master's Education: A CGS Guide to Establishing Programs*), available from the Council of Graduate Schools.

BUY IN

There needs to be faculty buy-in to a program which is quite different than a classical "courses plus thesis" approach. Faculty who only have had experience with thesis-based master's may be nervous about the workload associated with a new program. However, because most PMA and PSM degrees do not have a thesis, they require far less in supervisory resources than traditional thesis-based degrees. A PMA or PSM program should be designed in such a way that supervisory needs are minimal because most of the learning takes place in a specified number of courses. Thus, these programs will increase graduate enrolments without a corresponding increase in the one-on-one supervision necessary in thesis-based programs.

NOT A CONSOLATION PRIZE

Everyone involved needs to understand that PMA and PSM programs are not dumping grounds for candidates unsuitable for the PhD. In fact, PMA and PSM programs will attract a new type of student, one who is flexible, highly self-motivated, deadline oriented, and possibly already working. As such, PMA and PSM programs require a new approach to program advertisement and marketing, to reach a different audience than for traditional master's degrees.

INTERACTION WITH EMPLOYERS

As part of the program planning phase, information will have to be gleaned on workforce needs, including the types of positions offered in workplaces (possibly through analysis of job advertisements), as well as input from employers (through surveys or focus groups) on the types of positions they are looking to fill and their expectations of the skills required. This means that linkages to industry, corporations, government agencies, and other institutions/organizations will have to be established. Such linkages often take the form of an advisory group or board which helps to strengthen and develop faculty contacts in the workplace, provides input into the curriculum and supports internships and future employment for graduates.



CURRICULUM

Once the needs of potential employers and the components of the desired positions are well understood, the curriculum can be designed to fully prepare graduates to be effective on the job. This preparation will involve both a certain number of courses within or across disciplines and courses designed to prepare students to function well in a business or organizational environment (the “Plus” courses). Such preparation reduces the amount of on-the-job training that employers must do and enables new employees to be effective in their roles from day one.

PLUS COURSES

The mention of the Plus courses raises two significant issues involving a) the identification of the most appropriate Plus courses and b) decisions about how to deliver them.

The identification of which Plus courses should be offered depends somewhat on the program, but according to the Council of Graduate Schools (2006, 74-75), there is general consensus that Plus courses should include at least

- **business practices and ethics**
- **teamwork and team management**
- **writing and communication skills**

In some programs, other Plus courses are added such as

- **project management**
- **legal/regulatory issues**
- **entrepreneurship**
- **grant writing**
- **intellectual property**
- **policy development**
- **statistical analyses**

The number, type and content of the Plus courses really depend on the nature of the target workplace and the expectations of employers about what graduates should know to be effective on the job. In some programs, students are required to take specific Plus courses, while in other programs, students are allowed to choose a certain number of Plus courses from a larger set of courses offered.

The delivery of the Plus courses is worrisome for many departments. In most cases, discipline-based departments do not have faculty members who are able to teach business-related courses such as communication skills, or project management. However, there are many ways around this conundrum. One of



the most effective is to have all of the Plus courses delivered centrally so that students from a number of different PMA or PSM programs on campus take the Plus courses together. This approach is used by Rutgers University: a standard roster of Plus courses are made available centrally, and departments are free to include whichever Plus courses they feel are most appropriate for students in their PSM programs. The Plus courses are organized and made available through the office of the university's PSM Coordinator, and are taught by a variety of faculty from different business programs across campus. This approach is very cost-effective and allows those departments with small enrolment PSM programs to avoid the requirement of needing a certain class size to pay for the Plus courses.

Another approach is for the PMA/PSM programs within one Faculty to recruit experienced business professionals to teach the plus courses for their professional programs. This approach works well for those disciplines (such as engineering) which already have good industry contacts. For example, at Western, the Faculty of Engineering requires all master's students (whether in chemical or mechanical engineering, for instance) to take a certain number of professionally-oriented courses. These courses are offered by a combination of limited duties faculty identified through industry contacts as well as regular university faculty from other Faculties, such as Business and Law.

In some cases, a department offering a PMA/PSM program will partner with a business school, arranging for their students to take the same courses as the business students. This approach was taken by Claremont Graduate University's M.A. in Arts Management (see [Appendix 1](#)), which teamed up with the Drucker School of Management, thus enabling the Arts Management students to take leading-edge business courses as part of their program.

Yet another method is to make the Plus courses available to students online. For instance, students in the PSM programs at the University of Massachusetts Lowell take their disciplinary courses within the various departments offering PSM programs, while the business and communications courses are made available via online delivery whenever possible.

LADDERING

An issue which may become apparent when planning a PMA/PSM program is laddering. The term laddering is used to describe a staged approach to achieving qualifications. For instance, after the completion of a certain number of courses, the student could achieve a graduate diploma (usually referred to as a certificate in American programs) in the subject area. Once achieved, the diploma could be applied to the requirements for the master's degree if the student later decided to complete the whole degree. Alternately, the diploma could be incorporated into the degree as one of the requirements for students enrolled in the master's program. Often the Plus courses are offered as a diploma within the program.



Previous



Contents



Next

A laddered approach is often good for students who either already have a master's degree and want to complete the Plus courses, who are already working and want to improve their qualifications, or who aren't sure they want to commit to the full degree immediately. Laddering permits students to take the program in stages, giving them either a diploma or certificate if the decision is made not to complete the full master's degree. PMA/PSM programs are ideally suited to laddering because often, it is the Plus courses that applicants are missing from their qualifications and want to complete.

ADMINISTRATION AND STUDENT ADVISING

Any new program brings with it a plethora of administrative details. The Council of Graduate Schools (2006, 93) notes the following areas of administrative need:

- **contact with enquirers, applicants and admitted students**
- **recruiting and admissions**
- **web site and publicity materials**
- **program orientation**
- **internship solicitation, management and placement**
- **student advising, resume preparation, job searching and interview presentation**
- **interfacing with campus departments (housing, publications, scholarships etc.)**

13

How such needs are met depend upon the way in which the professional master's program is structured and the number of such programs on campus. If there is one program being offered by a single department or several departments, there are several ways that administrative support can be structured. The first method is to have a higher-level staff person act as the Program Director, with a faculty member who is the advisor or coordinator. The second method is to have a faculty member act as the Program Director, with part-time administrative or student assistance. Finally, a faculty member could be appointed a full-time Program Director, with release from other duties. While all methods will work, CGS points out (2006, 93) that the first method may be the more cost effective and efficient, particularly since a faculty member as Director may not have the time or inclination to attend to all the responsibilities noted above.

If there is more than one PMA/PSM program on campus or across many campuses, then some sort of coordinating body will be needed. David King (2010) from the State University of New York (which has a number of PSM programs across the system) recommends an overall Director of PSM Programs, as well as an Executive Committee representing the various stakeholders.



Previous



Contents



Next



Similarly, Rutgers University, with 26 PSM programs across its campuses, has a faculty member as the PSM Executive Director, two other faculty members as Associate Directors and two staff members (one for administration and one for internships), as well as an Executive Committee.

One of the areas that may need more attention in a professional master's program is student advising. The Council of Graduate Schools notes that

A feature of the most successful professional master's programs is advising students on career options, beginning with newly enrolled students and continuing as a regular feature during the program, to increasingly focus on the student's interests and potential internship and job opportunities... these advisory sessions morph into job search strategy sessions, coaching for job interviews... and finally advice on negotiating employment offers and acceptances. These advising activities develop the "professional" mien and confidence of the student.

(2006, 100)

Obviously, then, whatever administrative structure is developed for the program must have staff and/or faculty who are capable of carrying out the various kinds of advising required.

INTERNSHIPS

Internships are one of the hallmarks of professional master's programs, so the vast majority of PMA/PSM programs require internships, necessitating an associated administrative infrastructure. However, developing internships can be daunting when a department/unit has never done it. As noted in point 3, the background information gathered on workforce positions and skills required will form a strong basis both for curriculum development and for the later development of internship opportunities.

At Western, there are a number of graduate programs with internships or internship-like placements. The Public History program in the Dept. of History requires students to complete an internship. A faculty member acts as the Internship Coordinator, whose role is to "assist students in securing internships, but finding one appropriate to an individual student's situation and needs will be the student's responsibility". The program requirements note that

Each student must complete a 12 week full-time internship in their summer term. Host institutions can include museums, archives, TV,



film or documentary companies, historical and genealogical societies, heritage and museum consulting firms, historical research companies, or government departments such as Parks Canada or Library and Archives Canada... We encourage our students to choose an institution and location that best suits their career goals and interests. There is much flexibility in the design and terms of the internship: it may consist of one full-time placement or two shorter or part-time positions under different hosts; one major project or a number of smaller tasks; work with an individual or a small or large institution; and it may be served locally or elsewhere.

(From <http://history.uwo.ca/gradstudies/publichistory/phinternships.html>)

Western's Master's of Arts in Journalism also requires that students complete an internship, but in that case, since the program is only twelve months long, students are placed in a media outlet for the month of January, resuming classes in February. The Master's of Library and Information Science, on the other hand, makes paid co-op placements of either 4 or 8 months available to eligible students. These placements are not required but are nonetheless highly desired by the students. Placements are varied, including all kinds of libraries (academic, public, government) and other organizations where information management is a required function. Co-op placements are managed through a competitive interview process and not all students are accepted into a position.

There are many models for managing and developing internships. On campuses with many PMA/PSM programs, there is sometimes a full-time internships officer who works with the various programs to identify the types of internships desired and then goes looking for such opportunities in various workplaces. In a stand-alone PMA/PSM program, either the faculty or staff Program Director may take on the task of identifying and developing internships. Alternately, there already may be an internships officer with another unit on campus, such as Continuing Studies or Extension, who could take on, or assist with, this task. Members of the PMA/PSM advisory board also may be helpful here in facilitating contacts and identifying possible internship opportunities.

According to the Council of Graduate Schools (2006, 83), although internships can take place at any time during the PMA/PSM program, most take place in the summer after first year. Length also varies but again, the most frequent is an internship that lasts for several months, which can give the student the best idea of professional practice in the workplace. Many internships also provide a salary.



Previous



Contents



Next

Internships raise a number of procedural issues (CGS 2006, 82), such as

- internship length for effective outcomes
- meeting accreditation/licensing requirements if applicable
- pre-internship preparation
- nature of internship duties and experiences
- quality and quantity of assignments/material to be produced by the intern
- evaluation of students and placements

TRACKING GRADUATES

Finally, because they are so closely attuned to the needs of employers, PMA/PSM programs need a more careful tracking of student employment and success rates than is typical of other master's degrees. At the very least, tracking the placement and salaries of graduates is necessary and in fact, all U.S. professional master's programs that were created with Sloan Foundation funds and/or were sponsored by the Council of Graduate Schools are required to do such tracking.

In addition, programs should monitor student satisfaction with the program to ensure that goals regarding the preparation of students for particular career paths are being met. Exit interviews or surveys are conducted by most PMA/PSM programs, and some do follow-up surveys of alumni at 5 and 10 year intervals. Information on how the program has affected the graduate's job satisfaction and advancement opportunities are very useful to ongoing curriculum planning. While surveys and focus groups are commonly thought of as the main ways to keep track of graduates, there are many other novel ways of doing such follow-up. For example, George Washington University has developed a web portal to communicate with alumni from their PSM program in Molecular Biotechnology. They also regularly engage alumni as "judges of seminars in which graduating students present the results of the PSM program capstone projects" (CGS 2006, 109).



Developing New PMA or PSM Programs at Western

Under Ontario's new quality assurance framework for higher education, Western has developed its own Institutional Quality Assurance Process or IQAP (See http://www.uwo.ca/univsec/handbook/iqap/IQAP_full.pdf).

In this document, there are a number of relevant guidelines. First, page 1 of the document lists the specific details for what should be included in the new program brief, in the following areas:

- Objectives of the Program
- Admission Requirements
- Program Structure and Regulations
- Program Content
- Mode of Delivery
- Assessment of Teaching and Learning
- Proposed Tuition
- Resources Required and
- Quality Indicators

Second, Appendix 2 of the IQAP document (p. 46-47) outlines the Steps Preceding Submission of New Program Proposal to SUPR-U or SUPR-G.

17

Examples of Professional Master's Programs

Appendix 1, **Appendix 2**, **Appendix 3**, and **Appendix 4** illustrate the requirements of different professional master's programs, one in the Humanities, one in the Social Sciences, one in the Sciences and a Canadian example in the Health Sciences.



Previous



Contents



Next



References and Further Reading

Canadian Association for Graduate Studies (CAGS). 2006. *A Profile of Master's Degree Education in Canada*. Available at <http://www.cags.ca/media/docs/cags-publication/CAGS-Master.pdf>

Commission on the Future of Graduate Education. 2010. *The Path Forward: The Future of Graduate Education in the United States*. Washington: The Educational Testing Service and The Council of Graduate Schools.

Council of Graduate Schools (CGS). 2006. *Professional Master's Education: A CGS Guide to Establishing Programs*. Washington: CGS.

King, David. 2010. *SUNY and the PSM Degree: the New York Context*. Paper presented at the NPSMA Conference, Atlanta, Georgia, November.

National Governors' Association (NGA). 2006. *Issue Brief: The Professional Science Master's Degree: Meeting the Skills Needs of Innovative Industries*. Washington: NGA. Available at <http://www.nga.org/portal/site/nga/menuitem.9123e83a1f6786440ddcbbeb501010a0/?vgnnextoid=03dcc59ae624a010VgnVCM1000001a01010aRCRD>

National Research Council of the National Academies. 2008. *Science Professionals: Master's Education for a Competitive World*. Washington: National Academies Press. Available at http://books.nap.edu/openbook.php?record_id=12064&page=R1

National Science Board. 2003. *The Science and Engineering Workforce: Realizing American Potential*. Available at <http://www.nsf.gov/nsb/documents/2003/nsb0369/>

Professional Science Master's (PSM) Initiative. 2011. *PSM Program Statistics*. Available at <http://www.sciencemasters.com>

Glazer-Raymo, Judith. 2005. *Professionalizing Graduate Education: The Master's Degree in the Marketplace*. San Francisco: Jossey-Bass.

Teitelbaum, Michael S. and Carol B. Lynch. 2010. *Needed: Support for Professional Science Master's Degrees*. *The Chronicle of Higher Education*. August 15.

Tobia, Sheila. 2009. *Professional science degree may be 21st century MBA*. *Science News*. V. 175 (13), 32.

NOTE: A number of useful journal and newspaper articles on PSM programs are cited at <http://psm.rutgers.edu/node/43>



Appendix 1

Claremont Graduate University, Claremont, California

M.A. in Arts Management

(Text taken from <http://www.cgu.edu/pages/1334.asp>)

The Arts Management program blends the best of the renowned Drucker School of Management and the School of Arts and Humanities to balance business courses with advanced cultural studies. Cultural institutions in the profit and nonprofit sector are seeking capable managers with an understanding of the arts and business to head museums, theatre and dance companies, cultural centers, music and arts education organizations, and to advocate for the future of the arts.

The program consists of 12 courses for a total of 48 units. There are four required courses in management, four required courses in the humanities, and four elective courses. Subject to faculty approval, a student may transfer up to 8 graduate-level semester units of credit towards the MA. The program may be completed in two years of full-time study. A student who can demonstrate significant management training may request a waiver of one or more required courses and substitute elective courses. The student, with the help and approval of an advisor, determines the actual arrangement and sequence of courses taken.

19

CURRICULUM - ARTS & HUMANITIES (16 UNITS)

ARMGT 350 Theory & Practice of Arts Management

This survey course explores the theories, processes, and practices behind strategic planning and decision-making in arts and cultural organizations today.

ARMGT 351 Arts & Cultural Policy

“What is art good for?” is a question that is increasingly posed in public policy circles when the subject of public funding of the arts is raised. This course is a critical examination of the theories, concepts, models, and practice of arts and cultural policy.



Previous



Contents



Next

RESEARCH TOOL *(4 UNITS)

ARMGT 400 Arts Consulting Practicum

The Arts Consulting Practicum is a 4 unit capstone experience for the second year of the Arts Management program. Students will be partnered with a local art or cultural nonprofit organization, which will provide the student with a project, problem or challenge to be solved, with goals and objectives. The project will culminate in a final paper and public presentation.

CURRICULUM - MANAGEMENT (16 UNITS)

MGT 325 The Drucker Difference

This course focuses on individual, organizational, and societal issues raised by Peter Drucker and explores their implications in different functional areas of management.

MGT 328 Finance & Accounting for Non-Profits

Objectives of the course include: expanding awareness of the similarities and differences between financial management of profit-seeking firms and not-for-profit firms; understanding the scope and importance of financial management responsibilities within an arts organization; understanding the techniques of day-to-day financial management, with particular emphasis on budgeting, financial statements, internal controls and decision making.

MGT 345 Organizational Behavior

The purpose of this course is to provide students with a foundation of the fundamental skills they will need to understand, diagnose, and manage organizational behavior in order to attain the organization's mission more effectively.

MGT 321 Marketing Management

This course examines the process of strategic marketing management and considers its role within organizations. It presents the fundamentals of the marketing concept and considers the relationship between the marketing concept and other concepts such as innovation and entrepreneurship.



Appendix 2

Cleveland State University Cleveland, Ohio

Master of Arts in Global Relations

(Text taken from <http://www.csuohio.edu/class/politicalscience/Graduate/MAGI.html>)

21

Cleveland State's Master of Arts in Global Interactions (MAGI) is a new degree designed to prepare professionals to respond to Ohio's changing economy. As a major center for international interactions – in trade, finance, investment, politics and non-governmental organizations – as well as a key center for international security due to its Great Lakes location, the state needs an increasing number of people trained in skills for these jobs. The MAGI degree is the only program in northeast Ohio designed to meet this growing demand for commercial, political and economic global experts. The degree was developed in consultation with employers who need professionals with specialized and technical skills in addition to analytic, cultural, linguistic, and communicative and workplace skills.

REQUIRED COURSES

The MAGI degree consists of a total of 38 semester credit hours. It includes a five-course core (20 credit hours), one of two areas of concentration (12 credit hours), and an exit program.

The five required core courses are:

- [PSC 501](#) Seminar in Applied Theories of International Relations
- [ECN 582](#) International Economics
- [PSC 502](#) Seminar on International Political Economy
- [PSC 503](#) Political Risk, Early Warning and Conflict Management
- [COM 595/696](#) International Negotiation Strategy and Intercultural Communication Practices

CONCENTRATIONS

You may select either of two concentrations: Global Business Interactions or Global Political Interactions. Each consists of three courses of four credit hours each. You should select your specialization according to your career goals.



Previous



Contents



Next

GLOBAL BUSINESS INTERACTIONS

This concentration is intended for students who wish to specialize in international business, but seek a more comprehensive set of skills than those offered by traditional international MBA programs.

Required Course:

- [MBA 602](#) International Business

In addition, you will select two courses from one of the following tracks:

- Marketing
- Management
- Finance
- Accounting
- International Economics

GLOBAL POLITICAL INTERACTIONS

This concentration is intended for students who wish to study governmental, intergovernmental, and non-governmental activity in global affairs to prepare for a career in these areas, including international organizations, non-governmental organizations, and not-for-profit agencies.

Required Courses:

- [PSC 511](#) Global Governance
- [PSC 512](#) Non-State Actors in the Global Arena

In addition, students will take one course in History, Law, or other disciplines from a specified list of offerings.

Exit Requirement

The MAGI Exit Curriculum consists of 5 credits and is designed to enhance your skills in individual and group problem-solving. It includes a three-credit hour internship, the completion of an Exit Project, and a program in cross cultural awareness.

Internship

All MAGI students will take a three-hour internship or will engage in an international learning/study experience equivalent to a three semester hour course. Wherever possible, they will be placed abroad with a business, government agency or non-governmental organization conducting global transactions. Students will be expected to develop a specific project with measurable results.



Exit Project

All MAGI students will take a two-hour course designed to stress team problem solving skills. Students will design and implement a project involving commercial transactions, or address a global problem from a service-oriented approach.

Cross Cultural Awareness

Employers have consistently pointed to the need for master's program graduates to gain an enhanced capacity to interact with and live in foreign societies and cultures. In the MAGI program, you will have ample opportunity to enhance your cross cultural awareness through:

- Completing a Cross-Cultural Adaptability Inventory
- A self-awareness workshop focusing on the student's personal values, cultural biases and perceptions
- A one-credit course in Cross Cultural Proficiency
- Completion of two business language courses (French for Global Affairs: FRN 203 and Commercial Spanish: SPN 393)
- A CSU Study Abroad Program or equivalent study abroad program



Appendix 3

University of Massachusetts Lowell, Massachusetts

Master of Science in Biological Sciences – Applied Biotechnology Option

(Text taken from <http://www.uml.edu/catalog/graduate/colleges/sciences/biology/master.htm#appliedbiotechnology>)

The Professional Science Master's Program (PSM) combines traditional training in biological sciences with additional preparation in areas outside of biology, such as project management and discipline-specific courses, to provide students with a broader expertise useful for attaining positions in private-sector companies. A thesis is not required, but each student must participate in a professional internship.

24

CORE BIOLOGY REQUIREMENTS

- 66.635 Project Management (offered by the College of Management)
- 81.519 Biochemistry
- 81.521 Biochemical Techniques
- 81.542 Cell Biology or
- 81.560 Stem Cell Biology
- 81.576 Cell Culture
- 81.567/569 Molecular Biology/Laboratory
- 81.593/595 Immunology/Laboratory
- 81.604 Professional Communication in Science and Technology

ADDITIONAL BIOLOGY COURSES (3 CREDITS MINIMUM)

- 81.541 Topics in Cell Biology
- 81.540 Advances in Plant Biology
- 81.582 Cancer Biology
- 81.542 Cell Biology



Previous



Contents



Next

- [81.580](#) Developmental Biology
- [81.504](#) Environmental Microbiology
- [81.590](#) Human Neurobiology
- [81.560](#) Stem Cell Biology
- [81.572](#) Virology

***ADVANCED BIOTECHNOLOGY/INTERDISCIPLINARY COURSES
(6 CREDITS MINIMUM)***

- [92.586](#) Applied Statistics or
- [19.575](#) Introduction to Biostatistics and Epidemiology
- [10.586](#) Biotechnology Processing Project Laboratory
- [10.555](#) Biopharmaceutical GMP and Licensing
- [10.535](#) Cell and Microbe Cultivation
- [10.545](#) Isolation and Purification of Biotechnology Products

PROFESSIONAL INTERNSHIP (1 CREDIT)



Appendix 4

University of British Columbia and Simon Fraser University, Vancouver, B.C. CIHR/MSFHR Master of Science in Bioinformatics

(Text taken from <http://bioinformatics.bcgsc.ca/index.html#top>)

The CIHR/MSFHR Bioinformatics Training Program designed and taught by leading researchers and institutions in Vancouver, offers innovative, trans-disciplinary training to graduate students in health-related research. Established in 2002, the program operates as a partnership among Simon Fraser University, the University of British Columbia and the BC Cancer Agency... In addition to academic course work, students will conduct research rotations in both computational and biologically-oriented laboratories, and the program's mentors will personally guide [each student's] progress.

Computational methods have transformed biological research. The ability to computationally predict biological structures through advanced techniques in computer modeling and the development of new algorithms are important tools necessary for advancing health research globally. Our students, who have had exposure to original research and the opportunity to complete significant practical work on real bioinformatics problems, can enhance and diversify an organization's platform through fostering innovation.

26

CORE COURSES (MANDATORY):

- [MBB 505/BIOF 520](#) Problem Based Learning in Bioinformatics
- [MBB 659/BIOF 501A](#) Special Topics in Bioinformatics
- [MBB 741](#) Bioinformatics
- [CMPT 881](#) Algorithms for Molecular Computational Biology
- [CMPT 711](#) Bioinformatics Algorithms - may be a substitute for CMPT 881
- [CPSC 545](#) Algorithms For Bioinformatics - may be a substitute for CMPT 881

ELECTIVE COURSES AVAILABLE:

- [CMPT 705](#) DESIGN AND ANALYSIS OF ALGORITHMS
- [CMPT 726](#) MACHINE LEARNING



Previous



Contents



Next

- [CMPT 741](#) Data Mining
- [CMPT 880](#) Medical Image Analysis
- [CPSC 304](#) Introduction to Relational Databases
- [CPSC 445](#) Algorithms in Bioinformatics
- [CPSC 504](#) Database Design
- [HCEP 511](#) Cancer Epidemiology
- [CPSC 53A](#) Topics In Algorithms and Complexity - Bioinformatics
- [MATH 561](#) Mathematical Biology
- [MATH 612D](#) Topics In Mathematical Biology - Mathematics of Infectious Diseases And Immunology
- [MBB 823](#) Protein Structure and Function: Proteomic Bioinformatics
- [MBB 831](#) Molecular Evolution Of Eukaryote Genomes
- [MBB 835](#) Genomic Analysis
- [MEDG 505](#) Genome Analysis
- [STAT 540](#) Statistical Methods For High Dimensional Biology
- [STAT 802](#) Multivariate Analysis
- [STAT 805](#) Non-Parametric Statistics And Discrete Data Analysis
- [STAT 890](#) Statistics Selected Topics - Biometrical Genetics
- [PATH 531/MEDG 521](#) Molecular And Cell Biology Of Cancer

PROFESSIONAL DEVELOPMENT COURSES

As part of the requirement for the Bioinformatics training program, students must take two professional development workshops between now and the end of their second year. These workshops are things like interviewing skills, presentation skills, TA workshops, etc. The program will pay the cost of this if there is a fee associated with it. Proof of enrollment is required.

RESEARCH ROTATIONS

Students must participate in three four-month research rotations in affiliated research laboratories. Other courses may be required if recommended by the student's Thesis Supervisory Committee. Course requirements will normally be taken in the first year of the program... to allow for adequate laboratory time in the research rotations.

Research projects must have the potential to lead to or supplement a graduate student's MSc or PhD thesis. Participating companies are expected to provide remuneration equal to student's stipend (initially, this may be augmented to a maximum of \$4,000 by the program and its affiliates). Each project requires a sponsoring academic supervisor and an organization sponsor who will work directly with the student. The student, sponsoring academic and organizational sponsor will meet at the initiation of the research project and agree on a research plan.



Previous



Contents



Next

About the Author

Gloria J. Leckie

Professor Emeritus
Faculty of Information and Media Studies
MLIS, MA, PhD (Western)

E-Mail: leckie@uwo.ca

After attaining her BA in Geography from the University of Windsor, Gloria Leckie graduated from the MLIS program at Western in 1974 and worked for over a decade as a professional librarian. She then returned to Western to complete an MA and PhD, both in Geography. While completing her doctorate, Gloria taught cataloguing and classification in the MLIS program, which led to a tenure track position with the Graduate School of Library and Information Science in 1991. After the school became part of the Faculty of Information and Media Studies (FIMS), Gloria served as Undergraduate Chair from 1998-99, and then became Associate Dean, a position that she held from 2000-2007. As of June 30, 2011, Gloria is retiring from FIMS, but she is continuing at Western as a Faculty Associate with the Teaching Support Centre. In her new role, Gloria is using her expertise gained from many years of teaching in a graduate professional program to work on issues and new initiatives in graduate education at Western.



Teaching Support Centre Purple Guides

Teaching Support Centre

Room 122, The D.B. Weldon Library
The University of Western Ontario
London, Ontario N6A 3K7

T: (519) 661-2111 ext. 80346

E: tsc@uwo.ca

www.uwo.ca/tsc



Western