

Pharmaceutical and related careers



tap into a booming industry that saves lives!

Presented by the **Erindale Chemistry & Physics Society &
the Career Centre**

UTM
CAREER CENTRE

March 11, 2008

6:00 – 8:00 p.m.

UTM Council Chambers, SE3130

Panelists

Daniela Coretti, Associate Market Manager, Anti-Infectives Division, Bayer Healthcare Pharmaceuticals

Annil Ramsumair, Clinical Supplies Associate, AstraZeneca Canada

Tina Mann, Pharmaceutical Sales Representative, Pfizer Canada

David Kenney, Research Ethics Coordinator, St. Michael's Hospital

Lisa Cesario, Manager of Drug Information, Hoffmann-La Roche Limited

Career Centre. Room SE3094. Tel. 905-828-5451

Erindale Chemistry and Physics Society. Room NE222. Email. ecpsutm@gmail.com

Package prepared by **Christine Mazurkiewicz**, Career Assistant

Panel moderated by **Christine Mazurkiewicz**, Career Assistant

UTM
CAREER CENTRE

Room SE3094
Phone: 905.828.5451
www.utm.utoronto.ca/careers

**Please Note:*

*This package accompanies a career panel which is **available on DVD** at the UTM Career Centre and the Erindale Chemistry and Physics Society. The package is condensed from various resources listed throughout.*

Table of Contents

Introduction	.....2
Career Possibilities	.....3
Panelist Profiles	.....7
Canadian Pharmaceutical Industry Profile	.....10
How to Gain Experience	.....12
Education Options	.....14
Career Centre Resources	.....16
Useful Links	.....20
Alumni Profiles	.....21
Sample De-Listed Job Postings	.....23

Introduction

The Pharmaceutical industry uses chemicals to develop, manufacture and distribute therapeutic drugs and vitamins. There is a plethora of job opportunities in a variety of career areas in the industry. A graduate degree is valuable to obtain and progress in a pharmaceutical career but there are many opportunities for undergraduate degree holders as well. Networking and experience are key factors to obtain a job.

The mission of *Canada's Research-Based Pharmaceutical Companies*, a national organization, summarizes what pharmaceutical companies do: "to improve the quality of life of all Canadians and enhance our health care system by fostering the discovery, development and availability of new medicines and vaccines."

Pharmaceutical companies work with a number of other institutions. There are pharmaceutical related career opportunities at these establishments. Some of these institutions include:

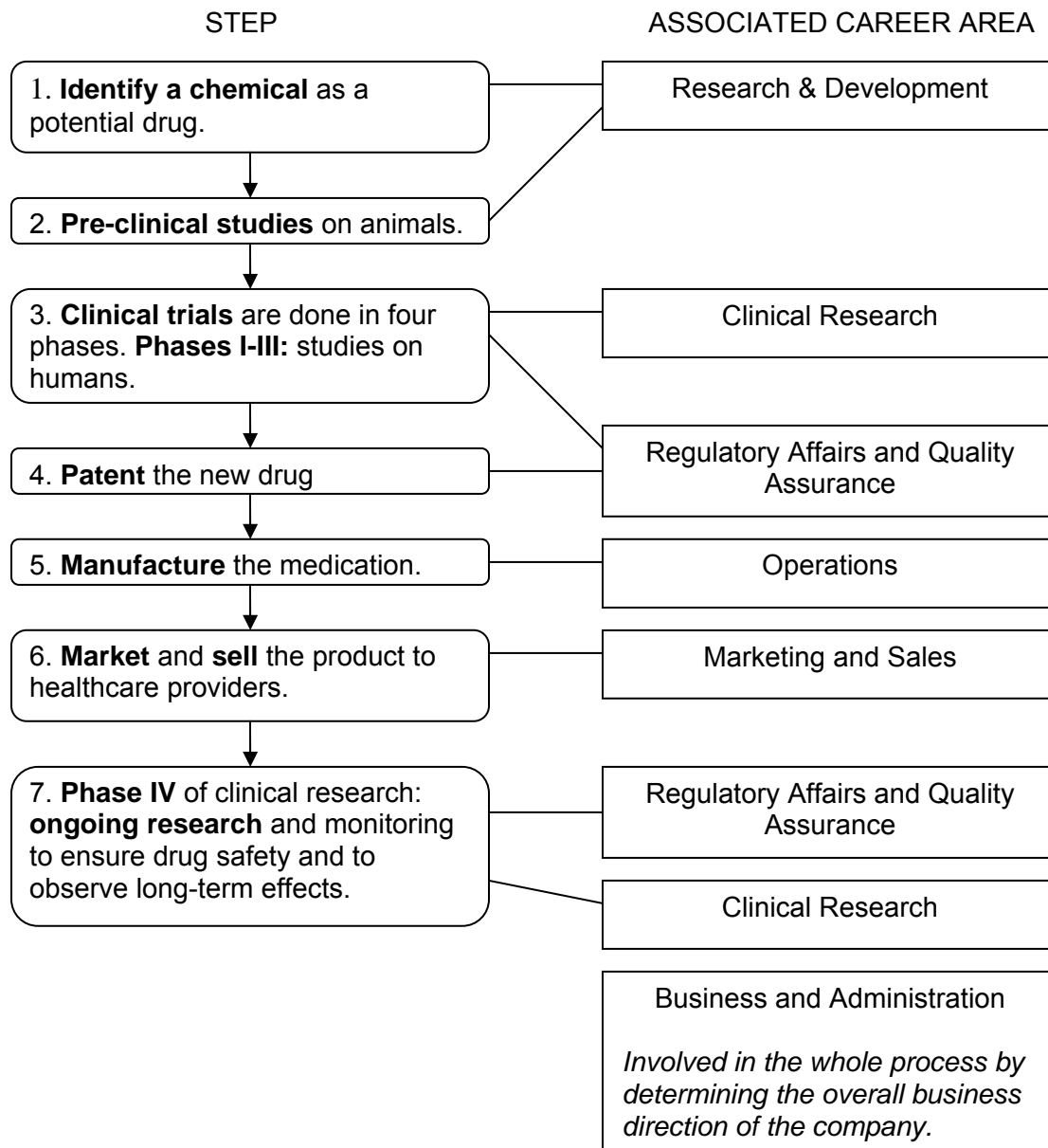
- biotechnology firms
- drug distributors
- clinical research centres
- universities
- hospitals/medical centres
- medical device suppliers
- financial consulting firms
- software companies
- government regulatory departments



Career Opportunities

DRUG DEVELOPMENT

"From the Lab to Your Medicine Cabinet"



CAREER AREAS

The career areas associated with each step listed in the above table are outlined below.

Research & Development (R&D)

R&D professionals seek to identify chemicals as potential drugs and perform pre-clinical trials on animals. Research is done in or outside the lab. A science background and research experience is required. A graduate degree is advantageous and required for some positions, though there are some entry-level positions which do not require a Masters degree. A graduate degree is needed to obtain jobs above entry level positions in this area. A Master's Degree is needed for bioinformatics and a PhD is required to be a pharmacologist.

Biotechnology companies are involved in this stage of drug development. They form partnerships with larger pharmaceutical companies and perform research on organic-based drugs. This field is known as biopharmaceuticals. There are opportunities for biochemistry and biology graduates at biotechnology companies.

Computer technology is a growing area in this field. There are software companies which specialize in developing software used in pharmaceuticals. Opportunities exist for people with a computer science background at these specialized software companies.

Bioinformatics: the use of a computer to store, retrieve and analyze biological data such as DNA and protein information.

Skills:

Research Skills
Science Knowledge
Creative
Open-minded
Teamwork

Sample Positions:

Pharmacologist
Analytical Researcher
Technician
Industrial Pharmacist
Research Assistant
Junior Level Chemist
Librarian (research outside the lab)

Computer Technology positions:

Computational Chemist
Bioinformatics Scientist
Software Engineer
Software Developer

Clinical Research

Clinical research involves performing clinical trials on humans to evaluate the effectiveness and safety of the drug. A science background is an asset, though there are some opportunities for people with a non-science degree. Graduates with a background in statistics are hired for statistician/biostatistician positions. A graduate degree is an advantage for executive/managerial positions. Bachelor degree holders are hired for entry-level positions and may achieve higher level positions with experience. There are specific college post-graduate programs in clinical research. Please refer to pages 14-15

of this package for more information on such programs.

Clinical trials occur in 5 phases:

Phase I: Early human trials to make sure the potential drug is safe.

Phase II: Determine that the drug is effective on humans.

Phase III: Large-scale trials to assess the effectiveness of the drug more thoroughly.

Phase IV: Safety surveillance once the drug is made and sold.

Although pharmaceutical companies may hold some clinical trials, many of these tests take place at medical centres, hospitals and large-scale clinical research centres. Career opportunities exist at these institutions.

Skills:

Research Skills
Knowledge of Product
Organized
Interpersonal and Communication Skills

Sample Positions:

Clinical Research Coordinator
Clinical Supplies Associate
Statistician/Biostatistician
Clinical Research Scientist
Senior Clinical Executive
Clinical Project Manager

Regulatory Affairs and Quality Assurance

This step entails performing checks, tests and conducting sampling procedures on raw materials and finished products and to make sure everything is made correctly, safely and reliably. Results are recorded to make sure quality standards are met and documents are made. Documents are reviewed to make sure they follow government regulations and protocols. Highest quality products are ensured. A science background and a graduate degree are advantageous and required for some positions. Please refer to page 14-15 for information about post-graduate programs in regulatory affairs and quality assurance.

Pharmaceutical companies work with law firms to patent their drug in order to have exclusive rights to manufacture and sell their product. A law degree is required to practice as an intellectual property (patent) lawyer. Many lawyers who work with pharmaceutical companies have a science background.

Skills:

Written and Oral Communication Skills
Teamwork Skills
Attention to Detail
Science Background (possibly)
Logical

Sample Positions:

Regulatory Affairs Specialist/Assistant
Quality Assurance Associate
Quality Assurance Investigator
Research Ethics Coordinator
Intellectual Property Lawyer
Intellectual Property Manager

Operations

The field of operations involves manufacturing the product on a large-scale, as well as promoting and maintaining health and safety on site. High efficiency of production is

<p>maintained. A science background is useful in this area.</p> <p>Ergonomics: How companies design tasks and work areas to maximize the efficiency and quality of employees' work.</p>	
<p>Skills:</p> <p><i>Analytical</i> <i>Efficient</i> <i>Multitask</i> <i>Teamwork</i> <i>Organized</i></p>	<p>Sample Positions:</p> <p><i>Occupational or Industrial Hygienists</i> <i>Production Technician</i> <i>Scientific Policy and Program Officer</i> <i>Analytical Chemist</i> <i>Ergonomist</i> <i>Chemical Engineer</i></p>

Marketing & Sales

<p>Marketing and sales professionals identify target customer groups (health-care professionals), meet with customers, set prices, and determine promotion strategies. Graduates with a background in marketing, CCIT, business and related study may pursue this area. A science degree is not needed for many of these positions, though it may be an advantage. A graduate degree and/or experience are required for managerial positions. Drug distributing firms work with pharmaceutical companies at this stage.</p>	
<p>Skills:</p> <p><i>Sales Related Experience</i> <i>Creative</i> <i>Teamwork</i> <i>Communication and Interpersonal Skills</i> <i>Persuasive</i> <i>Presentation Skills</i> <i>Knowledge of Product (science background may be helpful)</i></p>	<p>Sample Positions:</p> <p><i>Market Researcher</i> <i>Marketing Associate</i> <i>Advertiser</i> <i>Pharmaceutical/Technical Sales Representative</i> <i>Sales Manager</i> <i>Associate Market Manager</i> <i>Customer Marketing Manager</i> <i>Sales Training Manager</i></p>

Business and Administration

<p>Although a science degree is not needed, people with a science background may pursue this area of work. People with a background in business, commerce, accounting, management and finance are needed in this field. Business and administration seeks to identify new partners and manage existing alliances. An MBA may be required for some positions. The business direction of the company is determined and pursued. There are career possibilities at financial consulting firms who work with pharmaceutical companies to help with budgeting and developing a business plan.</p>	
<p>Skills:</p> <p><i>Communication and Interpersonal Skills</i> <i>Business Sense</i> <i>Organized</i> <i>Able to Negotiate</i> <i>Persuasive</i> <i>Teamwork Skills</i> <i>Able to Manage Budgets</i> <i>Presentation Skills</i></p>	<p>Sample Positions:</p> <p><i>Financial Analyst/Planner</i> <i>Manager</i> <i>Human Resources Manager</i> <i>Business Development Manager</i> <i>Business Development Analyst</i> <i>Communications Manager</i></p>

Panelist Profiles

Daniela Coretti

Daniela Coretti is an Associate Market Manager at the Anti-Infectives Division of Bayer Healthcare Pharmaceuticals. In her role, Daniela decides the direction in which Pharmaceutical Sales Representatives promote the company products to health-care professionals. Daniela deals mainly with promoting pneumonia medication to hospitals.

After graduating from UTM with an Honours Bachelor in Science with a Biology Specialist and Anthropology Minor, Daniela worked as a Sales Representative for Bell, gaining relevant sales experience essential for pharmaceutical sales positions. Her sales experience helped her land a job doing pharmaceutical sales at GlaxoSmithKline before becoming an Associate Market Manager at Bayer. Along the way, Daniela completed additional qualification from the Council for Continuing Pharmaceutical Education.

Daniela attributes much of her success to networking. Making contacts is important to landing a great pharmaceutical position and Daniela recommends starting during your undergraduate degree through networking events and internships. The UTM Career Centre has useful resources on networking and building contacts.

Annil Ramsumair

Annil Ramsumair is a Clinical Supplies Associate at AstraZeneca. In his work, Annil provides hospitals with supplies required for clinical trials including the investigational drug, medical devices and case report forms to name a few. Annil is responsible for forecasting required quantities of the drug to be tested and sourcing medication from various locations.

Annil graduated from UTM with an Honours Bachelor in Science with a Specialist in Biology and a Minor in Political Science. Before working at AstraZeneca, Annil volunteered as a Research Assistant at Princess Margaret Hospital and Mount Sinai Hospital. Then he worked as a contract Laboratory Assistant at Canadian Blood Services in the Nucleic Acid Testing Laboratory. After working at Canadian Blood Services Annil was hired at AstraZeneca working as a Clinical Supply Operator. He continued working in the Clinical Supply area at AstraZeneca as a Clinical Supplies Technician and finally at his current position, Clinical Supplies Associate.

Annil stresses the importance of volunteering in hospitals and labs during your undergraduate studies. He says that when putting together your resume and cover letter it is important to highlight relevant skills gained through volunteering and in your undergraduate courses. These skills are important to showcase when trying to break into the pharmaceutical industry.

Tina Mann

Tina Mann is a Pharmaceutical Sales Representative from Pfizer Canada where she promotes the company's products to health-care professionals. Tina holds a Master of Science in Analytical Chemistry from UofT and an Honours Bachelor of Science in Chemistry and Biology from Wilfred Laurier University.

During her studies she gained research and analytical experience as a research assistant at various labs. She also developed her interpersonal and presentation skills, which were essential to her future roles, as a TA for various subjects. Before joining the Pfizer team, Tina worked as a Corporate Liaison Coordinator, Master of Biotechnology Program at UofT and as a Public Relations and Communications Officer at UofT.

Tina says that in general, obtaining a graduate degree is valuable but not required to work in the pharmaceutical industry. One of the best ways to prepare to work in industry is through co-op or internships. (Refer to pages 12-13 for more information about internships.) Tina did not have the advantage of participating in an internship or co-op placement but says it would have been very useful. According to Tina, the most challenging aspect of breaking into pharmaceuticals is the "breaking into" it. Competition can be fierce so you have to decide what you have that sets you apart, start developing relationships early on and keep trying. Gain experience where you can, even if it's not necessarily in the same industry you are trying to pursue your career in. Tina gained transferable skills in positions not directly related to the industry before starting her pharmaceutical career.

David Kenney

David Kenney is a Research Ethics Coordinator at St. Michael's Hospital. In his position, David reviews clinical trial protocols and documentation to ensure that they comply with Health Canada guidelines. At St. Michael's Hospital, clinical trials range from sponsored drug trials, medical device trials, natural health product trials to doctor initiated studies.

David holds a Bachelor in Science degree from UTM with a Biology Major. During his undergraduate studies David found out about the Regulatory Affairs and Quality Assurance post-graduate diploma at Seneca College and decided this was a great opportunity for him. David did his co-op placement for the post-grad program at Sanofi-Pasteur as a Regulatory Affairs Associate and started working at St. Michael's Hospital after completing his post-grad diploma.

David says that the co-op placement and the skills he learned while studying at Seneca were essential to getting hired in a pharmaceutical related career. For more information on college post-graduate programs as well as other educational pathways refer to pages 14-15.

Lisa Cesario

Lisa Cesario is a Manager of Drug Information at Hoffmann-La Roche Limited. In her position Lisa works with a team to provide drug information to physicians and other healthcare providers as well as to the public. She also collates literature reviews and communicates with marketing and sales representatives at her company.

Lisa completed her Bachelor of Science in Pharmacy from the Leslie Dan Faculty of Pharmacy at UofT. She worked in a hospital dealing with oncology and worked part-time as a retail pharmacist before working at Hoffmann-La Roche. Lisa enjoys the day-to-day variety at her job and being able to participate in projects. She finds the responsibility of a management role both challenging and rewarding.

Lisa recommends doing a co-op placement during your undergraduate degree. The new pharmacy program at the University of Waterloo provides co-op placements for pharmacy students. Lisa says that for her line of work, a background in pharmacy, pharmacology, nursing or something closely related is required. She says that there are a number of career options for graduates with different educational backgrounds in other aspects of the pharmaceutical industry. Lisa believes that written and oral communication, prioritizing, multi-tasking, analytical thinking and teamwork are all valuable skills in her line of work.



Canadian Pharmaceutical Industry Profile

The following statistics were taken from Industry Canada's Life Sciences Gateway. For more information visit:

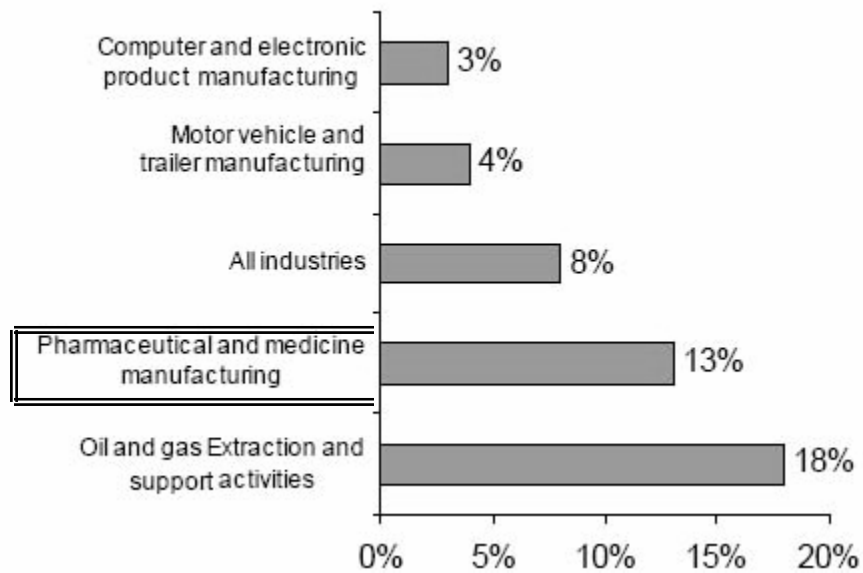
http://canada-pharma.ic.gc.ca/epic/site/lsg-pdsv.nsf/en/h_hn00001e.html

- Canadian pharmaceutical sales make up **2% of the world market**. Canada is the 8th largest world market in pharmaceutical sales. Canada has the **4th fastest growing pharmaceutical market**, after China, Mexico and Spain.
- Pharmaceuticals made up **18 percent of total health expenditures** in 2005, costing more than physicians. **Drug sales are growing** more rapidly than any other health related expenditure.
- The pharmaceutical sector **employed around 40,000 people** in 2005 and created about **35,000 indirect jobs**.
- Pharmaceutical companies are concentrated in **Toronto** and **Montreal**.
- **Brand-name firms** research, develop and patent new drugs while **generic companies** make copies of drugs after their patent expires.
- The **biotechnology** sector plays an important role in the pharmaceutical industry (called **biopharmaceuticals**). Biopharmaceuticals use chemicals derived from living things while traditional pharmaceuticals use synthetic chemicals to create new therapies. Many biotechnology companies form partnerships with, or become acquisitioned by, larger pharmaceutical companies. Although biotechnology is used in other areas like agriculture and environment, **68% of biotechnology research is in the biopharmaceutical industry**.
- **Technology** is becoming more important in Research and Development with the use of new software and modeling techniques to analyze chemicals at the molecular level.
- **Leading classes of drugs** in 2005 according to IMS Health:
 1. Cardiovasculars (14% of market)
 2. Psychotherapeutics (10% of market)
 3. Cholesterol agents (9% of market)
 4. Anti-spasmodics (8% of market)
 5. Cancer/immunomodulators (7% of market)
- Canada's largest drug company is **Pfizer Canada**, making up 13.4% of Canadian pharmaceutical sales, more than double the sales of any other Canadian pharmaceutical company.

- The two largest generic companies are **Apotex** and **Novapharm** which make up 6% and 2% of Canada's pharmaceutical market sales.



Average Profit margins for selected industries (1999-2004)



Source: Statistics Canada

How to Gain Experience

YOUR EDUCATION

Science students: emphasize your research and analytical skills and the science knowledge you gained in your practicals and lectures. These are great skills and experiences to put on your resume. Check out the sample pharmaceuticals and biotech-gear resumes on Vault (refer to page 20 for more information on Vault). Students in other academic areas should highlight their academic achievements as well. You can gain useful experience in courses in marketing, accounting and finance depending on the career area you want to pursue.

RESEARCH

Science students: volunteer with a professor who performs research in an area that interests you. Get to know your professors in courses you are taking. Visit their office hours or make an appointment. Before approaching a professor for a volunteer position, find out their research experiences and interests, and read a couple of their published papers. They will be impressed if you discuss their publications with them. Look into volunteering at the beginning of the school year if possible, although professors may need volunteers throughout the school year.

Research Opportunity Program: CHM/BIO299, CHM/BIO399, also in Management, Computational Science, Statistics and more. These courses allow you to work on a professor's research project under their supervision in return for a full year course credit.
<http://www.utm.utoronto.ca/intern/>

Independent Research Projects: CHM/BIO481, CBJ481(Bioinformatics) involve planning and undergoing a research project under the supervision of a faculty member as well as completing a written and oral report. Look for these courses in the Registrar's Course Calendar.
<http://www.utm.utoronto.ca/regcal/>

NSERC Industrial Undergraduate Student Research Awards (USRA) are scholarships that fund undergraduate research projects. NSERC also funds graduate research.
<http://www.nserc.ca>

INTERSHIPS

UTM Internship Courses include BIO400, MGT413 and more. For more information check out the UTM internship website or the UTM Internship office in room SE3004.
<http://www.utm.utoronto.ca/intern/>

Professional Experience Year is a program offered through UofT which allows you to apply your knowledge in a 12-16 month project-based professional internship.
<http://www.pey.utoronto.ca/site4.aspx>

The **NRC Student Employment Program** provides students with practical career-related experience in research and development, library sciences, communications, marketing and other areas.
http://careers-carrieres.nrc-cnrc.gc.ca/programs/summerempl_e.html

Biotalent's Career Focus Program helps provide young Canadians with valuable work experience in the biotechnology sector.
http://www.biotalent.ca/default_e.asp?id=56

The **Natural Resources Canada Science and Technology Internship Program** provides an opportunity for recent graduates in science or engineering to gain relevant and meaningful work experience.
<http://www.NRCan.gc.ca/css/hrsb/intern-e.htm>

WORKING AND VOLUNTEERING

Career Centre job postings online include **GSES** full-time postings for graduating students, **RGES** full-time postings for recent graduates (for up to two years following convocation), as well as **part-time**, **volunteer** and **summer job** postings for students in any year of study. Register online for a Career Centre online account.
<http://www.utm.utoronto.ca/careers>

The **Get Experience Fair** and the **Summer Job Fair** allow you to talk directly to employers and to organizations looking for volunteers. These events are hosted by the Career Centre.
<http://www.utm.utoronto.ca/careers> → "Events"

Job Directories are a great way to find contact information for local pharmaceutical companies to find out if they hire students for the summer or part-time. For more information on directories please refer to pages 18-19.



Education Options

BACHELOR AND MASTERS DEGREES

The pharmaceutical industry hires people with an *undergraduate* or *graduate* degree with a focus on, but NOT restricted to:

Chemistry
Biology
Biochemistry
Pharmacology
Pharmacy

Anatomy
Physiology
Immunology
Bioinformatics
Computer Science

Statistics
Business
Management
Commerce
Accounting

There are also **programs specific to pharmaceuticals** in Canada, listed below.

Undergraduate Programs in Canada

B.Sc. Applied Pharmaceutical Chemistry - University of Guelph
B.Sc. Pharmaceutical Chemistry - University of Toronto
B.Sc. Pharmaceutical and Biological Chemistry - York University
B.Sc. Biotechnology - University of Toronto, York University, University of Windsor, University of Waterloo, University of Guelph, Brock University, Carleton University

Graduate Programs in Ontario

M.Sc., Ph.D. Pharmaceutical Sciences – University of Toronto
M.Biotech - University of Toronto Mississauga (UTM)
M.Sc., Ph.D. Biotechnology - Brock University

Graduate Programs in Other Provinces

M.Sc., Ph.D. Pharmaceutical Science – University of Alberta
M.Sc., Ph.D. Pharmaceutical Sciences – University of British Columbia
Master of Biotechnology/Master of Business (MBT/MBA) (Joint Degree) – University of Calgary
Applied M.Sc. Biotechnology – McGill University

Pharmacy Programs (B.Sc. Pharmacy) offered at:

University of Toronto
 University of Waterloo
 University of Alberta
 University of British Columbia
 University of Manitoba

Dalhousie University
 University of Saskatchewan
 Memorial University of Newfoundland
 University of Montreal
 Laval University

Relevant Career Centre Resources

- Visit the annual **Professional Schools Fair** to talk to representatives from graduate and professional schools.
- The **Career Centre website** (please refer to page 17).
- Look up programs on **Career Cruising** (read page 18 for more information).

POST-GRADUATE COLLEGE DIPLOMA PROGRAMS

Post-grad college programs are a great option if you would like to earn an extra credential but a Master's Degree is not for you. These programs are usually about a year long, give you valuable hands-on skills and most programs include a co-op placement in a pharmaceutical setting. In fact, one of the panelists and one of the alum featured in the alumni profiles completed post-grad diplomas.

For more information go to the UTM Career Centre website and click on "College Post-grad Programs" under "Further Education", or visit www.ontariocolleges.ca.

Some examples are:

Clinical Research – Humber, Michener

Clinical Laboratory Quality Manager - Michener

Pharmaceutical Regulatory Affairs & Quality Operation (Co-op) – Seneca

Regulatory affairs – Humber

Biotechnology Technologist in Industrial Microbiology – Centennial

Bioinformatics – Seneca



Career Centre Resources

Below are listed just a few of the resources and services available at the UTM Career Centre. Drop by the Career Centre, SE3094, to find out what else we have to help in your career planning process. There are always Career Assistants on shift to help you find what you're looking for.

BOOKS

A series of “**For Chemical Professionals**” books published by the *American Chemical Society* is a useful resource. These books are meant for chemical professional at any career stage and provide concise, up to date information. The series includes:

Job-Search Strategies for Chemical Professionals (NAT-211)

Resume Preparation – Tips for Chemical Professionals (NAT-211)

Interviewing Skills for Chemical Professionals (NAT-211)

Employment Guide for Foreign-Born Chemical Professionals (NAT-211)

Insight into a Career in Pharmaceutical Sales (HEA-313) covers a wide range of topics from an industry overview to resumes and cover letters.

Opportunities in Clinical Laboratory Science Careers (NAT-212) provides descriptions of possible careers, how to become a laboratory professional, issues in the profession, and a section specifically on clinical lab science in Canada.

Biotech Career Guide (NAT-212) outlines the biotech sector in Canada, profiles specific careers and lists different training programmes in Canada. It talks about what skills you need and how to break into the industry.

Biology Job Market Analysis (NAT212) is great not just for biology students, but for grads from chemistry, management, commerce, and other areas. The section on private industry goes over what the pharmaceutical and biotech sectors are about, career pathways, potential employers and more.

Opportunities in Biological Science Careers (NAT-212) outlines a range of career opportunities, including career areas specific to pharmaceuticals like biotechnology, bioinformatics and genomics. It also covers employment outlooks and how to prepare for your career.

Alternative Careers in Science (1.22 Discover) explains how scientists can get involved in the financial and corporate world. It covers careers in areas like regulatory affairs and science patent law.

OCCUPATIONAL NOC BINDERS

These binders have up to date information compiled by Career Centre staff. They include career profiles, education pathways, labour market information, professional associations, sample job postings, Career Centre resources and articles.

Some NOC binders are:

Pharmaceutical Industry (HEA-313)

Chemist (NAT-211)

Biologist (NAT-212)

Biochemist (NAT-211)

Pharmacist (HEA-313)

Pharmacologist (NAT-212)

Biotechnology (NAT-212)

and much more!



CAREER CENTRE WEBSITE

www.utm.utoronto.ca/careers



Under the “**Explore Careers**” tab check out your major in the *Careers by Major* section to find out about careers, relevant skills, sample job postings, how to gain experience and more. Relevant majors in the Careers by Major section include chemistry, biology, management, computer science and more. *Alumni Profiles* outline career paths of graduates in your area of study. Also look at *panel packages* of previous panels under the resources and links section. Packages include “Beyond the Stethoscope: Careers in Health Care”, “Careers in Biology” and more. Some packages are only available in print at the Career Centre such as “Careers in Biotechnology”.

The “**Gain Experience**” and “**Find Employment**” tabs link you to information about *internships*, *volunteer* and *summer/part-time* positions. There are also some great *job search tools* and *resources and links*. There are links to relevant *professional associations* including “Chemical Institute of Canada” and “Toronto Biotechnology Initiative” under *Gain Experience*. Check out the *Resume and Cover Letter Toolkit* to find out how to prepare an effective resume and cover letter in 3 simple steps. The toolkit even has a sample science resume.

Learn about *graduate schools*, *college post-grad diplomas* and *professional degrees* under the “**Further Education**” tab. There are links to useful web resources about different programs, advice on preparing for grad school and an outline of relevant Career Centre events.

Check out the **Events Calendar** regularly to see what’s going on at the Career Centre and to sign up for our events online. Our events include fairs, workshops, employer info sessions and networking events. Relevant workshops are “Your B.Sc. Under the Microscope: What Can You Really Do With A Degree in Science?” and “Education after Your Science Degree”.

www.utm.utoronto.ca/careers

CAREER CRUISING

This site has profiles of a variety of careers. You can search careers by school subject or career cluster. The **Career Selector** links you to career profiles that match your interests, education and earning preferences. There is up to date information about university and college programs all over Canada and the U.S. You can search by school or program.

Each career profile contains

- A job description and working conditions.
- Education and training required for the position, and links to related university and college programs.
- Links to profiles of related jobs.
- Links to useful websites.
- Informational interviews with professionals.
- Salary information under “earnings” and “career path”.

Relevant career profiles include

Chemist
Pharmacologist
Pharmacist
Biological Tech

Biotechnologist
Medical Lab Tech
Microbiologist

Technical Sales
Representative
and more!

You can access Career Cruising at the UTM Career Centre or from your Career Centre online account.

JOB DIRECTORIES

Job directories are a great way to find out *who hires, what they're looking for, and who to contact*. It lets you *network* and *build contacts*. It's a great way to find work in the industry because often companies don't post positions, so contacting employers directly gives you a heads up for these less advertised, therefore potentially *less-competitive* positions. Grab the **Networking and Company Research tip-sheets** from the Career Centre and take a look at our directories.

Contact employers to find out about internships, summer jobs, volunteer opportunities during undergrad and inquire about full time work in your last year of study or when you graduate.

Here's information on some GTA-located pharmaceutical companies from **“The Career Directory”** found in the Career Centre. For contact information and more extensive company profiles, look under *Industry Index → Manufacturing → Pharmaceutical and Drug Manufacturers*.

APOTEX INC is The largest Canadian-owned pharmaceutical company manufacturing and developing pharmaceuticals. The company has facilities in Toronto and Richmond Hill.

Looking for Graduates from: Bachelor of Science/Arts/Engineering, Master or

Doctorate of Science, Chartered Accountant, Community College Diploma, Human Resources, Microsoft Qualifications

Positions for Graduates: Chemist, In-Process QA Inspector, Lab Technician, Production Engineer, Project Engineer, Human Resources Specialist

PATHEON INC. is located in Mississauga and performs development and manufacturing services to pharmaceutical companies. Check out the Patheon brochure in the Career Centre library in the "HEA" bin.

** Patheon Inc. offers co-op and summer positions for university students!

Looking for graduates from: Bachelor of Science/Arts/Commerce/Business Administration, Master of Science/Engineering, Certified Management Accountant, Human Resources, Purchasing Management, Quality Assurance, High School Diploma
Positions for Graduates: Quality Control Analyst, Technical Writer, Research Chemist, Microbiologist, Project Coordinator, Quotations Associate, Associate Process Engineer, Manufacturing Operator, Administrative, Accountant, Human Resource Specialist

RATIOPHARM is a Mississauga based company. It manufactures generic pharmaceutical products.

Looking for graduates from: Bachelor of Science/Engineering, Master of Science (chemistry)

BOEHRINGER INGELHEIM is research-based company which develops treatments for respiratory diseases, hypertension, AIDS and other conditions as well as veterinary medicine. It has locations in Burlington and Laval.

Looking for Graduates From: Bachelor of Science/Arts/Commerce/Business Administration, Master of Arts/Science, MBA, Doctorate of Science

Skills the seek: previous pharmaceutical experience, team player, interpersonal, communication skills

Also check out these directories:

Canadian Biotechnology 2004 includes useful articles and a directory of Canadian biotechnology firms organized by area of interest such as stem cells or women's health. Describes companies and provides contact information.

Canadian Medical Technologists 2004 includes articles and a directory organized by supplies and services such as finance or product development, profiling companies and providing contact information.

2000 Canadian Chemical Directory lists contact information and locations of hundreds of direct and indirect chemical suppliers and affiliated companies (potential employers!).

Useful Links

Canada's Research-Based Pharmaceutical Companies has current information about the industry and links to companies.

<http://www.canadapharma.org>

Corey Nahman.com was founded and edited by Corey Nahman, an industry professional. Click on "Pharmaceutical Sales" from the home page for tips on breaking into the industry, case histories for people who got into pharmaceutical sales and more.

www.coreynahman.com

Industry Canada is Canada's business and consumer site; this link is for their page on the pharmaceutical and biopharmaceutical sectors. For more information go to pages 10-11 of this package.

http://canada-pharma.ic.gc.ca/epic/site/lsg-pdsv.nsf/en/h_hn00001e.html

PharmWeb is an online community of pharmacy, pharmaceutical and healthcare related professionals. This site has some useful links, discussion forums and mailing lists.

<http://www.pharmweb.net/pwmirror/pharmweb0.html>

Vault is an online career library accessible to UofT students. You can download useful career guides and find out about specific companies and industries. Relevant guides you can download include *Vault Career Guide to Pharmaceutical Sales & Marketing* and *Vault Career Guide to Biotech*.

Also check out Vault's sample resumes and cover letters, and resume and cover letter advice, under "*Career Advice*" on the Vault homepage. There is a sample pharmaceutical sales resume, and a biotech researcher resume.

<http://www.utm.utoronto.ca/careers> → "A-Z Index" → "Vault - Online Career Library"

PharmaJob is a great site for Canadian pharmaceutical job postings. Check out the "Job alert" link to get e-mails about future positions in your location and career interests.

<http://www.pharmajob.ca/>

The PetriDish Career Portal links you to employment opportunities within the biotechnology industry.

<http://www.petridish.ca/public/index.cfm>

Science Careers helps you find a job in a variety of areas in science, including pharmaceuticals.

<http://aaas.sciencecareers.org/js.php>

Alumni Profiles

The following profiles are taken from the UTM Career Centre website. To see more profiles click on “Alumni Profiles” under “Explore Careers” from the Career Centre homepage. These are not profiles of panel speakers. For panelist profiles please refer to page 7.

Stephanie Vaccari

Degree: B.Sc.

Specialist: Biology

Minor: Sociology

Year of Graduation: 1993

Stephanie Vaccari is an intellectual property lawyer working for an international law firm called Baker & McKenzie.

“There are a number of challenges and rewards associated with my profession,” says Stephanie, who deals with corporations and individuals on a daily basis.

An example of the type of case Stephanie may handle is helping scientists protect their inventions.

“My science degree helps me in the area of law that I practice,” she says. “For example, I have represented a number of pharmaceutical companies in patent infringement disputes. In these cases, my background has helped me understand the invention and patent in question.”

Stephanie, who is also a member of a number of professional associations, such as the Toronto Intellectual Property Group, the Canadian Bar Association, and the Italian Chamber of Commerce, credits her U of T degree with helping her get where she is today.

“I truly believe that obtaining a degree from the University of Toronto helped me get into law school and helped me get interviews with various major law firms,” she says. “My professors at U of T helped me make my career choice.”

Stephanie went on to article at a firm called Aylesworth, Thompson, Phelan, O'Brien and she was a lawyer at Hitchman & Sprigings (2 years) and at Baker & McKenzie (5 years).

“It is important to be detailed oriented, to ‘think outside of the box,’ and to be creative,” Stephanie says. “Never give up.”

Kathy Piliouras

Degree: B.Sc.

Specialist: Physical Anthropology

Minor: Biology

Year of Graduation: 2001

Kathy Piliouras is a Senior Study Manager for Clinical Trials at GlaxoSmithKline(GSK).

“GSK is one of the world’s leading pharmaceutical companies,” says Kathy, who earned a Masters of Biotechnology degree in 2003. “The main reward of my position is knowing that my work will someday make a difference in the lives of patients. I don’t find that there are any significant challenges in the position even though I do welcome challenge as an opportunity to learn.”

Kathy lists passion, persistence, independence, time management skills, and an ability to multitask as key characteristics involved in her job.

“I started as a co-op student at GlaxoSmithKline and was offered a contract position by the company before I graduated. I think I was hired because the company had been able to see my work for 10 months. I had proven to them that I was an asset to the company,” says Kathy. “I found that the co-op portion of the Master of Biotechnology program enabled me to get a foot in the door.”

Kathy previously worked as a Life Sciences and Biotechnology Consultant Intern at Strategic Health Innovations and a Study Manager at GlaxoSmithKline before landing her current position.

“I think the key to success is confidence, believing that you can do what you put your mind to” she says. “It might sound contrite, but everyone can see that confidence.”

Milan Patel

Degree: B.Sc.

Specialist: Biology

Minor: Chemistry

Year of Graduation: 2001

Milan Patel is currently a Regulatory Affairs Project Manager responsible for making sure that all research and development is completed in compliance with the Canadian Food and Drugs Act. He says communication, negotiation, patience, and integrity are key to his position.

Milan, who has a post-graduate certification in regulatory affairs, searched for work through job websites, recruiters, and networking.

“The career center had a profile of my job, which prompted me to apply to the post-graduate certification program at Humber College,” says Milan, a member of several pharmaceutical and bio-tech research and development associations.

Milan has previously worked as a Regulatory Associate for Genpharm Inc., a Regulatory Associate for CanReg Inc., and a Regulatory Project Manager for the Department of National Defence.

“The key to my success has been patience, negotiating skills, planning skills and tough skin,” he says.

Sample De-Listed Job Postings

De-listed postings are job postings from the Career Centre Jobs Database whose deadline has passed to apply. The purpose of looking at de-listed postings is to see the kinds of positions that are advertised and what skills and qualifications employers look for.

For more detailed delisted postings visit the Career Centre. For current postings check out the Career Centre online job postings at www.utm.utoronto.ca/careers

SAMPLE DE-LISTED STUDENT PART-TIME AND WORK-STUDY JOB POSTINGS

Position Title: RESEARCH ASSISTANT
Duties: Work on a research project related to providing public policy issues and drug access in developing countries.
Organization: UofT - Faculty Of Pharmacy
Job Order Number: 2008.WC.0167

Position Title: MEDICAL MARKET RESEARCHER
Duties: Gather and deliver data that will impact the way clients run their businesses.
Organization: Millennium Research Group
Job Order Number: 2008.PT.2451

Position Title: RESEARCH ETHICS COORDINATOR
Duties: Coordinate research ethics submissions through all stages of the review and approval process. Provide advice to researchers.
Organization: Innovation Institute Of Ontario
Job Order Number: 2007.PT.1421

Position Title: ADVERTISING PROJECT COORDINATOR (for pharmaceutical clients)
Duties: Coordinate and execute project accounts in a fast paced team environment.
Organization: CMED (a DDB worldwide company)
Job Order Number: 2008.PT.2134

Position Title: UNIVERSITY SUMMER STUDENT JOB PROGRAM
Duties: A unique work experience within your area of study including science, marketing, finance, HR, actuarial science and more.
Organization: Novartis Canada
Job Order Number: 2007.SR.0229

Position Title: PHARMACEUTICAL SALES SUMMER INTERN
Duties: Promote prescription medicines to physicians, pharmacies & hospitals. You may also be involved in key sales projects.
Organization: Proctor & Gamble

Position Title: RESEARCH ASSOCIATE
Duties: Provide support to clinical research studies and complete Case Report Forms.
Organization: Decisionline Clinical Research Corporation
Job Order Number: 2008.PT.2877

Position Title: CLINICAL QUALITY CONTROL ASSOCIATE
Duties: Ensure that study documents follow protocols and regulations. Observe clinical procedures to make sure that they are performed in accordance to protocols.
Organization: Pharma Medica Research Inc.
Job Order Number: 2008.PT.1363

Position Title: SUMMER LAB TECHNICIAN
Duties: Perform analytical testing and Quality Control inspection of assigned materials and products.
Organization: Decisionline Clinical Research Corporation
Job Order Number: 2007.SE.0959

Position Title: INSTRUCTOR, PHARMACEUTICAL EPIDEMIOLOGY
Duties: Develop class curriculum. Teach a class of students or working professionals.
Organization: International Pharmaceutical Product Institute
Job Order Number: 2007.PT.2578

Position Title: NSERC UNDERGRADUATE SUMMER STUDENT**Duties:** Work in various departments on advanced projects. Perform lab work under the direct supervision of a mentor.**Organization:** Patheon Inc.**Job Order Number:** 2007.SR.0246**Position Title:** INDUSTRY SUMMER TRAINING PROGRAM**Duties:** Work on cutting-edge arthritis research and development with leading pharmaceutical and biotechnology companies.**Organization:** CANADIAN ARTHRITIS NETWORK**Job Order Number:** 2007.SE.0471**Position Title:** SCREENING COORDINATOR**Duties:** Screen potential subjects in person and on the phone for clinical trials. Manage medical files.**Organization:** Allied Research International**Job Order Number:** 2007.PT.0969**Position Title:** REGULATORY AFFAIRS**Duties:** Review preclinical and clinical reports to ensure that documents are accurate.**Organization:** Viventia Biotech**Job Order Number:** 2006.SE.0457**SAMPLE DE-LISTED GSES JOB POSTINGS**

GSES postings are for full-time positions available to graduating students. You can sign up for GSES in your graduating year.

Position Title: MARKET RESEARCH ANALYST**Job Order Number:** 2008.GS.0466**Duties:** Produce comprehensive market research reports and conduct custom consulting projects.**Organization:** Millennium Research Group**Position Title:** SCIENTIFIC ADVISOR/ REVIEWER/RESEARCHER**Job Order Number:** 2005.GS.0245**Duties:** Proof read training materials and scientific writing. Participate in clinical research project planning.**Organization:** Kriger Research Center Inc.**Position Title:** MEDICAL INFORMATION & SAFETY ASSOCIATE**Duties:** Respond to inquiries on marketed pharmaceuticals. Provide scientific support to the marketing and sales departments.**Organization:** Ferring Inc.**Job Order Number:** 2005.GS.0321**Position Title:** PROJECT ASSISTANT**Duties:** Act as key liaison between sales, clients, the production team and vendors. Work with sales to prepare project requirements.**Organization:** Dymaxium Inc.**Job Order Number:** 2007.GS.0469**Position Title:** SYNTHETIC ORGANIC CHEMISTS**Duties:** Work on research and development of early stage active pharmaceutical ingredients (API) and intermediates.**Organization:** Torcan Chemical Ltd.**Job Order Number:** 2002.GS.0395**Position Title:** CONTROL SYSTEM DESIGNERS**Duties:** Write functional descriptions, program PLC's, configure operator interfaces and program motion control systems.**Organization:** Sterner Automation Limited**Job Order Number:** 1999.GS.0140**Position Title:** NRC EMPLOYER INFO SESSION**Duties:** Candidates are sought for research positions, summer and co-op employment and for the Women in Engineering & Science Program.**Organization:** National Research Council**Job Order Number:** 2000.GS.0066**Position Title:** AUTOMATION DESIGNER**Duties:** Brainstorm independently or in a small team. Developing customized applications involving both hardware and software components. Meet with clients.**Organization:** Eppcon Systems Inc.**Job Order Number:** 2000.GS.0238