

**WHAT CAN I DO WITH MY MAJOR IN****PHYSICS****OVERVIEW OF MAJOR**

Concordia University's Department of Physics offers both undergraduate and graduate programs. At the undergraduate level degrees offered include the Bachelor of Science Major in Physics and the Bachelor of Science Specialization in Physics with options in either Biophysics or Physics. A Co-operative program is offered to students who are enrolled in the Bachelor of Science Specialization in Physics. At the graduate level the department offers a Master of/Magisteriate in Arts (Physics) and a Doctor of/Doctorate in Philosophy (Physics). For the latest information on programs, go to the Department of Physics' Internet site at: <http://physics.concordia.ca/>.

A degree in physics prepares graduates to work in a broad range of settings and careers, particularly those related to science and technology. In addition to preparing students for work in chemistry, biology and engineering, physics has direct applications to transportation, communication and entertainment technologies. Many undergraduates proceed with graduate studies in fields other than physics such as computer science, engineering, chemistry or mathematics. For those who wish to pursue an academic career or research and development, a Ph.D. is usually required.

**EXAMPLES OF JOBS ACQUIRED BY  
CONCORDIA GRADUATES**

The following job titles are representative of the types of entry-level positions for which Concordia University students are qualified upon graduation. Note that the numbers following each job title refer to Canada's National Occupational Classification (NOC) code. For details on these titles go to <http://www5.hrsdc.gc.ca/NOC/>.

- Engineering Scientist (2148)
- Geophysicist Trainee (2113)
- Industrial Consultant (2252)
- MRI Reader (3215)
- Physicist (2111)
- Quantitative Analyst
- Radiation Scientist (2111)
- Research Assistant (4122)
- Research Consultant (4161)
- Research Scientist (2111)
- Sales Engineer (6221)
- Teacher (4141, 4131)
- Technical Sales Representative (6221)
- Technical Support Specialist (6221)
- Test Engineer (2133, 2146)
- Tutor (4216, 4122)
- University Professor (4121)

## CELEBRATED PHYSICS MAJORS

**Jimmy Carter.** 39th President of the USA.

**Steven Glenwood MacLean.** Canadian. Astronaut.

**Rachel Zimmerman.** Canadian. Inventor of Blissymbol Printer.

**James Hillier.** Canadian. Inventor of 1st High-resolution Electron Microscope.

**Richard Edward Taylor.** Canadian. Nobel Prize for Verifying the Quark Theory.

**Sidney Altman.** Native Montrealer. Molecular Biologist. Nobel Prize in Chemistry.

**Gordon James O'Connor.** Concordia Alumnus. Former Canadian Minister of Defense.

**Arthur Leonard Schawlow.** Nobel Prize in Physics for Research in Laser Spectroscopy.

**Stephen William Hawking.** Renown Theoretical Physicist. Wrote A Brief History of Timeeeme Court Justice

- Atomic Physicist (2111)
- Biophysicist (2111)
- Cardiac Imaging Researcher (3216)
- Chemical Physicist (2111)
- Computer Engineer (2147)
- Computer Programmer (2174)
- Computer Systems Analyst (2171)
- Cosmologist (2111)
- Consultant (1122, 4161, 4165)
- Electrical Engineer (2133)
- Electronics Engineer (2133)
- Entrepreneur (0621)
- Fluid Physicist (2111)
- Forensic Scientist (2211, 2112, 2221)
- Geodetic Technologist (2254)
- Geophysicist (2113)
- Health Physicist (2111)
- Hydrologist (2113)
- Industrial Hygienist (4161)
- Inventor
- Laboratory Technician (2211, 2221, 2241, 3211)
- Mathematician (2161)
- Medical Physicist (2111)
- Meteorologist (2114)
- Molecular Biophysicist (2111)
- Nuclear Engineer (2132)
- Nuclear Physicist (2111)
- Oceanographer (2113)
- Optometrist (3121)
- Plasma Physicist (2111)
- Professor (4121)
- Robotics Engineer (2132)
- Science Writer (5121)
- Scientific Photographer (5221)
- Scientist (2111)
- Seismologist (2113)
- Stratigrapher (2113)
- Structural Engineer (2131)

## MORE JOB TITLES

Top occupational choices for physics graduates are related to engineering, computer science, management, health sciences and teaching with jobs being most abundant in applied settings. Only a small percent of those with an undergraduate degree are employed as physicists and astronomers. The titles below are not meant to be exhaustive but are representative of fields which physics majors pursue. Keep in mind that some occupations require further education (e.g., a higher degree, second degree, diploma). Note that the numbers following each job title refer to Canada's National Occupational Classification (NOC) code. For details on these titles go to <http://www5.hrsdc.gc.ca/NOC/>

- Acoustics Physicist (2111)
- Aerodynamicist (2111)
- Aeronautical Engineer (2146)
- Aerospace Engineer (2146)
- Air Traffic Controller (2272)
- Architect (2151)
- Astronaut
- Astronomer (2111)
- Astrophysicist (2111)

## POTENTIAL WORK SETTINGS

A great many graduates work in the private sector for businesses and corporations such as electronic firms, the aerospace industry, engineering companies and research laboratories. Others work for the government, educational institutions, the military, securities firms, insurance companies and real estate establishments. To research specific employers who hire those in the field, there are many resources available in such locations as the Career Resource Centre, the Webster Library, Vanier Library and the Internet.

- Aircraft and Instrument
- Manufacturers
- Atmospheric Environment Services
- Atomic Energy of Canada
- Chemical Manufacturers
- Colleges and Universities
- Computer Science Industry
- Defense Manufacturing Companies
- Department of Agriculture
- Department of National Defense
- Electrical Equipment Companies
- Engineering Consulting Firms
- Environmental Protection Agencies
- Fisheries
- Government Laboratories
- Health Canada
- Health Institutions
- Museums
- National Energy Board
- National Science Foundation
- Natural Resources Canada
- Planetariums
- Police Departments
- Production Facilities
- Public Works Departments
- Standards Council of Canada
- Technical Consulting Firms
- Telecommunications Industry
- Testing Labs

## SKILLS AND CHARACTERISTICS

Among the most important skills for success in the field are communication skills, problem solving and interpersonal skills. Important too are inquisitiveness, adaptability, an analytical mind, the ability to formulate hypotheses, strong research skills and leadership. In addition, students will find the following skills, interests, values and other characteristics valuable for succeeding in the field. Among the most important skills for success in the field are communication skills, problem solving and interpersonal skills. Important too are inquisitiveness, adaptability, an analytical mind, the ability to formulate hypotheses, strong research skills and leadership. In addition, students will find the following skills, interests, values and other characteristics valuable for succeeding in the field.

- Ability to Draw Intelligent Conclusions
- Ability to Test Hypotheses
- Abstract Thinking
- Attention to Details
- Computer Skills
- Confidence
- Coping Under Pressure
- Data Analysis/ Observation Skills
- Decision Making
- Desire for Continuing Education
- Good Judgment
- Imagination
- Independence
- Instrumentation Skills
- Investigation Skills
- Listening Skills
- Love of Challenge
- Mechanical Aptitude
- Modeling or Simulation
- Objectivity
- Oral Presentation Skills
- Organizational Skills
- Patience
- Perseverance
- Process Information Quickly
- Quantitative Interpretation
- Report Writing Skills
- Resourcefulness
- Scientific Ability
- Superior Mathematical Abilities
- Synthesizing Information
- Self-motivation
- Teamwork
- Time Management

## PROFESSIONAL ASSOCIATION AND OTHER LINKS

Making wise career decisions requires exploring your field. A multitude of Internet sites and other resources will help you do this to the best of your ability. Professional association sites, in particular, are very useful for their career descriptions and job hunting tips. Moreover, these authoritative sites frequently provide links to Internet sites which announce job openings and list potential employers. A few recommended sites are included below.

### CANADIAN

#### **Canadian Association of Physicists**

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

Serves Canadian physicists in education, industry and research. Free membership is offered to undergraduate students as well as one year free to graduate students. Click Careers to locate Employment Opportunities and information on Physics Careers. Explore offerings from the Committee to Encourage Women in Physics. (Can be found under Committees under the About the CAP heading.) Consider volunteering on committees to enhance your resume and network with professionals in the field.

#### **Canadian Nuclear Association (CNA)**

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

Aims to advance peaceful uses of nuclear technology. Offers publications, newsletters, articles and links to nuclear organizations worldwide. Association events, seminars and activities provide opportunities to get to know potential employers. Although the Association does not have student memberships, it does have an annual conference and career fair to which students can be invited to attend.

#### **Canadian Organization of Medical Physicists (COMP)**

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

As their main professional organization, COMP promotes the interests of Canadian medical physicists. Click on Careers/Advertising for job postings. Site also includes a salary survey, annual meetings, other events and links to websites. Use the handy Site Map to learn what other resources are available on the site.

#### **Engineers Canada**

<http://www.engineerscanada.ca>

The International Engineering Graduates section found under the heading Programs provides much of interest. Women in Engineering found under the heading Programs includes many resources of value to women.

#### **Royal Astronomical Society of Canada**

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

Supports the advancement of astronomy and related sciences by promoting astronomical literacy, research and education. Click on Education to see what the Society provides for students.

#### **Society for Canadian Women in Science & Technology (SCWIST)**

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

SCWIST is a non-profit organization which aims to empower women in science and technology. Presents programs which expose women to different career options. Explore its BLOG, newsletters and links to related organizations.

### INTERNATIONAL

#### **American Association of Physics Teachers**

<http://www.aapt.org/>

Disseminates knowledge especially with respect to teaching physics. Click on Resources to find information of interest to Students as well as to locate the AAPT Career Center (Job Board).

#### **American Astronomical Society (AAS)**

<http://aas.org>

Explore offerings under Jobs including Internships and the Career Center. Click on Education and then Learn to find information on careers, listings of astronomy-related degrees and student resources.

#### **American Institute of Physics**

<http://www.aip.org/>

**Promotes the advancement of physics. Students will find useful resources such as job boards, job fairs, publications, awards & prizes, statistical research, career advice, occupational profiles. Publishes various pamphlets for those entering the field. American Association of Physicists in Medicine (AAPM)**

<http://www.aapm.org>

AAPM's mission includes advancing the practice of physics in medicine and biology. Along with promoting research and development and disseminating scientific information, it aims to further education and professional development of medical physicists. Offers career services.

## CREATE YOUR AMAZING CAREER – CAREER RESOURCE CENTRE TITLES

For those who need more help with their career and educational planning, the Career Resource Centre (CRC) offers books, pamphlets, DVDs and recommended Internet sites. It is located in the Hall Building, H-440, at 1455 de Maisonneuve Blvd. West. The following titles are just a few of the titles available in the CRC.

- Physics Careers
- Careers in Biophysics
- Landing Your First Job: A Guide for Physics Students
- A New Universe to Discover: A Guide to Careers in Astronomy
- Careers for Physicists
- Aspiring Academics: A Resource Book for Graduate Students and
- Early Career Faculty
- Career Opportunities in Aviation and the Aerospace Industry
- Success Strategies for Women in Science: A Portable Mentor
- Careers for Scientific Types & Others with Inquiring Minds
- Resumes for Science Careers
- Barron's Guide to Military Careers
- Alternative Careers in Science
- Get Your IT Career in Gear
- Careers in Engineering
- The Scientist as Consultant: Building Career Opportunities