

INVEST YOUR DIPLOMA IN A DEGREE

*Interested in a
Degree Transfer
Program? . . .*



Lakehead University
A Northern Vision



The Arms of the University
were granted by the
Earl Marshal, the Duke of Norfolk,
on June 20, 1959.

The heraldic description is:

COAT OF ARMS

"Barry wavy of six Argent and Azure on a Chief Gules in front of a rising Sun issuant from the base of the Chief Or between two Candles enflamed proper each surmounted of an open Book also proper edged and bound Gold a Portcullis chained Sable."

CREST

"On a Wreath Or and Azure on Water Barry wavy Argent and Azure in front of a Rock growing therefrom a Pine Tree a Canoe paddled by an Indian Brave and Canadian Trapper."

MOTTO

Ad augusta per angusta
Achievement through effort

... Lakehead University welcomes diploma graduates!

At Lakehead University, we are proud of the opportunities offered to qualified diploma graduates to further their professional qualifications at the degree level. Programs in Business, Engineering, Medical Laboratory Sciences and Nursing have been specifically designed to suit the academic needs of diploma transfer students. Our degree transfer program in Engineering is the only one of its kind in Canada. Graduates of Forestry, Geology, Social Work and Visual Arts diploma programs are eligible for admission consideration to related degree programs. Specific scholarships and awards to a maximum of \$1,000 each are available to transfer students entering full-time degree studies.

At Lakehead University, we value diploma graduates who have decided to invest further in their professional futures, by choosing to pursue our unique degree transfer programs.

This brochure details the entrance requirements and brief descriptions of typical programs of study for college graduates seeking admission to specific degree programs at Lakehead University. Information of a more detailed nature will be forwarded to applicants upon request. Applicants should be aware that all Schools and Departments are subject to University and Faculty regulations as outlined in the current Lakehead University calendar.

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CAMPUS VISITS

One of the best ways to learn more about Lakehead University is to visit us! Personalized tours can be arranged any day, Monday to Friday, by contacting the Liaison Office. One of our students will show you our classrooms, laboratories, library, residences and athletic facilities. Normally, you will attend a class or two and meet with the co-ordinator of your program of interest.

For information contact:

The Liaison Office
Lakehead University
Oliver Road
Thunder Bay, Ontario
P7B 5E1

(807) 343-8157 or
Toll Free 1-800-465-3959 (Ont., Man. & Sask.)

**** WE LOOK FORWARD TO SEEING YOU AT LAKEHEAD UNIVERSITY! ****

APPLICATION PROCEDURES

An Ontario Universities' Application Form #105, which is available from the Ontario Universities' Application Centre (Box 1328, Guelph, Ontario N1H 7P4) or from the Registrar's Office, Lakehead University, should be submitted by a student who has not previously attended Lakehead University.

The student who has previously attended Lakehead University will apply on the L.U. Undergraduate Application Form, which is available from the Registrar's Office.

Upon receipt of the application at Lakehead University, the Registrar's Office will request necessary academic records from the applicant. It is the applicant's responsibility to ensure that these documents are forwarded directly from the institution(s) to Lakehead University. Unofficial statements of marks may be submitted as interim working documents. It is recommended that the applicant also submit calendar descriptions for courses completed at the post-secondary level (other than Lakehead University). Any assessment of an applicant's admissibility and/or advanced standing will include this documentation and be done on an individual basis.

The applicant will be notified as soon as possible of his/her admission status. As some programs are limited in enrollment, it is recommended that application be made as soon as possible in the academic year (i.e. prior to January 1 of the proposed year of entry).

THE SENATE OF LAKEHEAD UNIVERSITY RESERVES THE RIGHT TO CHANGE REGULATIONS, PROGRAMS AND COURSE REQUIREMENTS AS OUTLINED IN THIS PUBLICATION WITHOUT PRIOR NOTICE.

COURSE NUMBERING SYSTEM

The first digit indicates the year level:

- 0 - course has no year level designation
- 1 - normally a first-year level course
- 2 - normally a second-year level course
- 3 - normally a third-year level course
- 4 - normally a fourth-year level course

The second digit indicates the subject division code (where applicable).

The third digit indicates the course weight designation:

even numbers (0-8) -- full courses
(normally, a minimum of three lecture hours per week
over two academic terms)

odd numbers (1-7) -- half courses
(normally, a minimum of three lecture hours per week
over one academic term)

The Faculty of Professional Studies uses the number
'9' in the third position to indicate a non-credit course.

SCHOOL OF BUSINESS ADMINISTRATION

The Bachelor of Administration degree program has been designed to provide opportunities which increase awareness and understanding of the fundamental principles and practices essential for efficient, effective administration. The primary objective of the program is to increase each student's capabilities and competence in preparation for institutional environments where significant emphasis is placed on the implementation of policies rather than their formulation. Hence, course participants are exposed to a growing body of decision-making methods and techniques which are routinely applied to increase the efficiency and facility with which specific services are provided.

At a time when administrative practices are playing an increasingly important role in specific subsectors of our society, the need for proficient administrative personnel is greater than ever before. This growing need is reflected in the proliferation of numerous courses and programs sponsored by a growing number of professional agencies, rationalized to help meet these needs.

The program has been designed to provide a core of courses which have elements common to most administrative positions.

BACHELOR OF ADMINISTRATION DEGREE

ADMISSION REQUIREMENTS

1. College of Applied Arts and Technology graduates from a six semester (three-year) Business Administration program with a "B+" average in Business subjects (cumulative average) will be considered on an individual basis. In some cases, where make-up courses are not required, it may be possible to complete the Bachelor of Administration degree requirements in one academic year.
2. College of Applied Arts and Technology graduates from a four semester (two-year) Business Administration program with an "A" average in Business subjects (cumulative average) will be considered on an individual basis.

When assessing the applicant's college transcript, the Admissions Committee will look for the following courses:

TWO SEMESTERS* IN EACH OF:

Administration/Management
Data Processing
Human Resource Management
Accounting
Economics
Communications
Corporate Finance (NOT Personal Finance or Financial Accounting)

ONE SEMESTER* IN EACH OF:

Production/Operations Management
Statistics
Marketing

It is extremely important to understand that this is a very liberal package of credits based on your total college education. Your marks and the detailed course content have a major bearing on the Committee's decision. You may not gain credit for specific courses even though you have the requisite number of hours.

* A semester course carries a minimum of forty-five lecture hours.

PROGRAMS

Students admitted under category 1 (above), without academic deficiency, will normally proceed through the following program of study:

Business 3451 - Business Strategy I	0.5
Business 3471 - Business Strategy II	0.5
Business 3418 - Administrative Behaviour	0.5
Options	3.5

A maximum of 3 HCE (half-course equivalents) listed under any one of the 5 subject areas designated below:

Computer/Systems	
Finance/Accounting	
Marketing	
Personnel/IR	
Other	
Entrepreneurship	
Non-Business Courses	---
	5.0

ADVANCED STANDING TOWARDS PROFESSIONAL DESIGNATIONS

After completion of any of the programs offered by the School of Business Administration, a student will be eligible to receive credit for certain courses in the programs leading to the designations of Chartered Accountant (C.A.), Registered Industrial Accountant/Certified Management Accountant (R.I.A./C.M.A.), Certified General Accountant (C.G.A.), and Chartered Secretaries and Administrators (A.C.I.S.).

SCHOOL OF ENGINEERING

The School of Engineering at Lakehead University offers unique post-diploma Engineering degree programs in Chemical, Civil, Electrical and Mechanical Engineering to graduate Engineering Technologists. It is important for all entrants to these programs to realize that they are being admitted into an Engineering degree program designed specifically for them, rather than part-way through a regular Engineering program.

Students will find that their classmates come from cities and towns from coast-to-coast and that many of them will have industrial experience. They have come to Lakehead University because of its high quality programs and because the School of Engineering has concentrated its efforts on providing an Engineering education for graduate Engineering Technologists. Each program is fully accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers. Our graduates have been very well received by government agencies, industry and graduate schools.

If you are interested in the Bachelor of Engineering degree programs, you should request an application form plus information you may desire on programs, residence and scholarships from the Registrar's Office during the Fall prior to the year you plan to attend. Your application will go to The Ontario University Application Centre in Guelph, and you will be requested to arrange for the Registrar at each post-secondary institution you previously attended to send an official transcript of your marks to the Registrar's Office at Lakehead University. It will also be to your benefit to submit your resume to our Registrar's Office.

Applications should be sent very early in the new year because admissions begin in early February. If you are in your final year of College, you should arrange for your first-term marks (two terms if your college has three terms) to be sent, and your application will be processed based on your progress.

The transition program, as described below, begins the first week of July, and the regular academic year begins approximately the second week of September.

CONTACTS:

Director: Dr. J. G. Locker

Chairmen: Chemical Engineering - Dr. L. J. Garred
Civil Engineering - Dr. C. D. Johnson
Electrical Engineering - Professor D. Roddy
Mechanical Engineering - Dr. S. H. L. Tsang

BACHELOR OF ENGINEERING DEGREE

ADMISSION REQUIREMENTS

The following are the minimum requirements for admission consideration to the School of Engineering post-diploma program.

The applicant with two or more years of industrial experience must have a diploma in technology from a Community College, Ryerson Polytechnical Institute, Lakehead University or its equivalent with an average of at least 60% in his/her final year.

The applicant with no industrial experience must have a diploma in technology from a Community College, Ryerson Polytechnical Institute, Lakehead University or its equivalent with an average of at least 70% in his/her final year.

At the time of admission, the candidate's background will be assessed to determine whether any deficiencies exist and, if necessary, make-up courses from Lakehead University's Technology Program and transition courses will be recommended.

COURSES OF STUDY

The Engineering degree program consists of core courses in mathematics and materials science, discipline courses in engineering science and design, and elective courses in engineering and complementary studies. The program for each discipline is specified below.

ELECTIVES:

Students must select their complementary studies courses (non-technical electives) from elective packages prepared by the School and available for selection purposes at the time of registration. These packages provide a sequence of courses to permit students to obtain courses at the introductory and advanced levels in a field of study.

At the time of registration, the Chairman will assist students to select their technical and complementary studies electives.

On occasion, students may find it convenient to interchange the position of complementary studies electives and technical electives from one term to another in their programs in order to accommodate course selection.

Some technical elective courses are not available every year. Students will be informed, at the time of registration, of the courses available. Students may obtain counselling on electives from their Chairman.

TRANSITION PROGRAM

In order to facilitate the transition from technology to degree studies, and from industry to university, the School of Engineering provides a special transition program which is required by all students entering the Engineering degree program at Lakehead University. This program of study is normally taken during the summer prior to the first year of degree studies.

The Engineering Admissions Committee reviews each student's application for the Bachelor of Engineering program, and uses the guidelines included in the course descriptions below to decide upon the transition program requirements for each student. Students are reminded that the Admissions Committee reserves the right to set the transition program requirements it judges to be correct for each individual student.

Students are advised of their required courses and the timetable for the transition program upon admission to the Engineering degree program.

Engineering 4010 -- Engineering Analysis A

Review course on the application of algebra, series, and calculus to the analysis of Engineering problems. This course is intended for entrants to the Bachelor of Engineering program from industry, but others may be required to take it.

Engineering 4012 -- Engineering Analysis B

Application of more advanced analysis techniques to Engineering problems, including the use of complex numbers, hyperbolic functions, vectors and differential equations. This course has been designed to prepare students entering the Bachelor of Engineering program who did not receive a mark of 70% in Mathematics 3010 or its equivalent prior to entry to the degree program.

Engineering 4014 -- Engineering Chemistry

Basic principles and relationships of chemistry as applied to Engineering. This course has been designed to provide entrants to the Bachelor of Engineering program with an improved background in chemistry, and it is taken by all students except graduate Chemical Engineering Technologists.

Engineering 4015 -- Engineering Thermodynamics and Heat Transfer

Fundamental laws and principles of thermodynamics and heat transfer as well as their applications to Engineering problems. This course is required by those entrants to the Bachelor of Engineering program whose previous background does not include this subject or who do not have an adequate standing in thermodynamics.

Engineering 4016 -- Engineering Mechanics

Applications of the principles of statics, kinematics, dynamics and strength of materials to Engineering problems. This course is required by those entrants to the Bachelor of Engineering program whose previous background does not include this subject and for entrants who are judged to require a review of this subject material.

Engineering 4017 -- Electronics

Electronics and its applications to instrumentation and controls. This course has been designed for students entering the Bachelor of Engineering program in the Chemical and Mechanical Engineering disciplines.

CHEMICAL ENGINEERING DEGREE

FOURTH YEAR

Fall Term

Engineering 4032	Materials Science
Engineering 4037	Fluid Dynamics
Engineering 4038	Mass Transfer Separations I

Mathematics 4010

One Engineering elective course
One complementary studies elective course

Winter Term

Engineering 4534	Chemical Engineering Thermodynamics
Engineering 4550	Mass Transfer Separations II
Engineering 4553	Heat Transfer Design
Chemistry 0230	Topics in Organic Chemistry
OR	
Chemistry 2070	Introductory Polymer Science

One Engineering elective course
One complementary studies elective course

FIFTH YEAR

Fall Term

Engineering 5032	Chemical Plant Design I
Engineering 5050	Chemical Reactor Design
Engineering 5052	Process Control
Engineering 5969	Degree Project
Mathematics 5050	Numerical Analysis and Computing

One Engineering elective course
One complementary studies elective course

Winter Term

Engineering 5532	Chemical Plant Design II
Engineering 5539	Professional Practice and Law
Engineering 5969	Degree Project
Chemistry 0230	Topics in Organic Chemistry
OR	
Chemistry 2070	Introductory Polymer Science
Mathematics 4030	Probability & Statistics

One Engineering elective course
One complementary studies elective course

Chemical Engineering Elective Courses:

Chemical Engineering students will normally select their Engineering elective courses from the following list. Not all elective courses in this list will be offered every year.

Engineering 0136	Environmental Control
Engineering 0238	Industrial Management
Engineering 0330	Fluid System Design
Engineering 0334	Selected Topics in Chemical Engineering
Engineering 0335	Air Pollution Control Methods and Analysis
Engineering 0339	Process Optimization
Engineering 0436	Economic Analysis for Engineers
Engineering 0530	Energy Conversion and Environmental Effects
Engineering 0533	Electrochemical Engineering
Engineering 0536	Advanced Topics in Heat Transfer
Engineering 0551	Kraft and Sulphite Production Systems
Engineering 0552	Petroleum Engineering

Engineering 0555 Chemical and Physical Hazards
 Engineering 4034 Advanced Controls I
 Engineering 5038 Hydrology

Note: Not more than one of Engineering 0238 or 0436 may be selected.

CIVIL ENGINEERING DEGREE

FOURTH YEAR

Fall Term

Engineering 4035 Structural Analysis I
 Engineering 4036 Mechanics of Solids
 Engineering 4050 Principles of Soil Mechanics
 Engineering 4052 Open Channel Flow
 Mathematics 4010 Applied Analysis III
 One complementary studies elective course

Winter Term

Engineering 4533 Foundation Engineering
 Engineering 4535 Steel Structures
 Engineering 4552 Finite Element Methods
 Geology 4010 Applications of Geology in Engineering I
 Mathematics 4030 Probability & Statistics
 One complementary studies elective course

FIFTH YEAR

Fall Term

Engineering 4032 Materials Science
 Engineering 5035 Reinforced Concrete Structures
 Engineering 5038 Hydrology
 Mathematics 5050 Numerical Analysis and Computing
 Two Engineering elective courses
 One complementary studies elective course

Winter Term

Engineering 0136 Environmental Control
 Engineering 5539 Professional Practice and Law
 Engineering 5969 Degree Project
 Geology 5010 Applications of Geology in Engineering II
 Two Engineering elective courses
 One complementary studies elective course

Civil Engineering Elective Courses:

Civil Engineering students will normally select their Engineering elective courses from the following list. Not all elective courses in this list will be offered every year.

Engineering 0137 Transportation Systems
 Engineering 0232 Municipal Planning
 Engineering 0233 Structural Design Topics
 Engineering 0235 Water Resources Engineering

Engineering 0336 Topics in Civil Engineering
 Engineering 0338 Structural Analysis II
 Engineering 0436 Economic Analysis for Engineers
 Engineering 0437 Topics in Soil Mechanics
 Engineering 0534 Construction Engineering
 Engineering 0553 Traffic Engineering

Note:

Students may interchange the position of complementary studies electives and technical electives from one term to another in their program to accommodate course selection. Obtain advice from the Civil Engineering Department. See course descriptions for prerequisites.

ELECTRICAL ENGINEERING DEGREE

FOURTH YEAR

Fall Term

Engineering 4051 Dynamic Systems and Measurements
 Engineering 4032 Materials Science
 Engineering 4033 Circuit Theory and Design I
 Engineering 4034 Advanced Controls I
 Mathematics 4010 Applied Analysis III
 One complementary studies elective course

Winter Term

Engineering 4530 Computer Circuits Design
 Mathematics 4030 Probability & Statistics
 Mathematics 4070 Applied Analysis IV
 Three Engineering elective courses
 One complementary studies elective course

FIFTH YEAR

Fall Term

Engineering 5036 Analog Integrated Circuit Applications
 Engineering 5051 Electric Machines I
 Engineering 5053 Communications Systems
 Engineering 5969 Degree Project
 Mathematics 5050 Numerical Analysis and Computing
 Physics 3211 Electromagnetic Theory
 One complementary studies elective course

Winter Term

Engineering 5537 Microwave Circuits and Design
 Engineering 5539 Professional Practices and Law
 Engineering 5969 Degree Project
 Two Engineering elective courses
 One complementary studies elective course

Electrical Engineering Elective Courses:

Electrical Engineering students will normally select their Engineering elective courses from the following list. Not all elective courses in this list will be offered every year.

Engineering 0138	Advanced Controls II
Engineering 0339	Process Optimization
Engineering 0433	Circuit Theory and Design II
Engineering 0436	Economic Analysis for Engineers
Engineering 0438	Power System Analysis and Design
Engineering 0531	Topics in Electrical Engineering
Engineering 0532	Digital Signal Processing
Engineering 0550	Optical Communications
Engineering 0554	Power Electronics
Engineering 0556	VLSIC Design
Engineering 0559	Satellite Communications

MECHANICAL ENGINEERING DEGREE

FOURTH YEAR

Fall Term

Engineering 4032	Materials Science
Engineering 4036	Mechanics of Solids
Engineering 4037	Fluid Dynamics
Engineering 4051	Dynamic Systems and Measurements
Mathematics 4010	Applied Analysis III
One complementary studies elective course	

Winter Term

Engineering 4536	Engineering Thermodynamics
Engineering 4551	Dynamics of Machines
Engineering 4553	Heat Transfer Design
Mathematics 4030	Probability & Statistics
Mathematics 4070	Applied Analysis IV
One complementary studies elective course	

FIFTH YEAR

Fall Term

Engineering 5030	Mechanical Engineering Design I
Engineering 5536	Mechanical Vibrations
Engineering 5969	Degree Project
Mathematics 5050	Numerical Analysis and Computing
One Engineering elective course	
One complementary studies elective course	
One science elective course	

Winter Term

Engineering 5538	Mechanical Engineering Design II
Engineering 5539	Professional Practice and Law
Engineering 5969	Degree Project
One Engineering elective course	
One complementary studies elective course	
One science elective course	

Mechanical Engineering Elective Courses:

Mechanical Engineering students will normally select their Engineering elective courses from the following list. Not all elective courses in this list will be offered every year.

Engineering 0238	Industrial Management
Engineering 0330	Fluid Systems Design
Engineering 0335	Air Pollution Control Methods and Analysis
Engineering 0339	Process Optimization
Engineering 0436	Economic Analysis for Engineers
Engineering 0530	Energy Conversion and Environmental Effects
Engineering 0536	Advanced Topics in Heat Transfer
Engineering 0537	Manufacturing Processes and Production Systems
Engineering 0538	Topics in Mechanical Engineering
Engineering 0557	Introduction to Robotics
Engineering 0558	Advanced Topics in Vibrations
Engineering 4552	Finite Element Methods

SCHOOL OF FORESTRY

WHAT IS MODERN FORESTRY?

"Modern forestry is the science, business and art of managing and conserving forests and associated lands for continuing economic, social and environmental benefit. It involves the balanced management of forest resources for optimum yields of wood products, abundant wildlife, plentiful supplies of pure water, attractive scenic and recreational environments in both wildland and urban settings, and a variety of other services and products.

Modern forestry also draws upon the knowledge and experience from many disciplines and other professions, and plays a wide role in the development and implementation of techniques for the management of forest resources."

Association of University Forestry Schools of Canada

OBJECTIVE OF THE SCHOOL OF FORESTRY

The paramount objective of the School of Forestry is to advance the practice of Forestry in Canada by educating skilled Foresters who have the desire to manage our forests for the optimum benefit of man and his environment. The growing importance of the Boreal Forest in the social and economic development of Ontario is emphasized.

This program is intended, through the provision of a wide range of Forestry, science and complementary courses, and through field and laboratory training, to prepare graduates for professional careers at responsible levels in government services and the forest industries. Emphasis is directed particularly toward forest resources management in the Boreal Forest Region of Canada.

The program is designed to carry academic theory through to implementation in practice, and to permit students to pursue areas of special interest through a choice of electives in the senior years. Senior students, working in close contact with the staff, will develop professional competence through the analysis and presentation of projects on situations and problems in actual Canadian forest resources development and management situations.

The problems of planning and directing the management of Canada's forest resources to ensure that they are maintained for the benefit and enjoyment of all citizens, and for future generations, will constitute a continuing challenge to all young men and women who become qualified as professional Foresters.

Long term projections of the demands which will be made upon Canada's forests for woods, recreation, fish and wildlife, and for environmental protection, indicate that employment opportunities for Foresters should be increasingly favourable.

THE PROGRAM INCLUDES A NUMBER OF COURSES IN MATHEMATICS, CHEMISTRY AND BIOLOGY WHICH PRESENT CONSIDERABLE DIFFICULTY FOR THE STUDENT WHO LACKS APTITUDE OR AN ADEQUATE EDUCATIONAL BACKGROUND IN THESE SUBJECT AREAS.

Ontario Professional Foresters Association

Graduation from Lakehead University with the H.B.Sc.F. degree provides the academic qualifications for registration in the Ontario Professional Foresters Association. Membership in the Association is required of all who wish to be recognized as Professional Foresters in Ontario, as provided under the Ontario Professional Foresters Act, 1957 and in the Crown Timber Act of Ontario.

Association of British Columbia Foresters

The H.B.Sc.F. degree program has been accredited by this Association, thus graduates possess the necessary academic qualifications for registration in the Association. Registration is mandatory for any person who wishes to practise professional Forestry in British Columbia.

Canadian Institute of Forestry

Graduates are qualified for active membership in the Institute, a national association of scientists and practitioners in the fields of renewable resources management and research.

HONOURS BACHELOR OF SCIENCE IN FORESTRY DEGREE

ADMISSION REQUIREMENTS

Applicants who have completed an accredited two-year Forestry diploma with a minimum "B" overall average are eligible for admission consideration to the second year of the Honours Bachelor of Science Forestry degree program. Applicants who are admitted to the Forestry degree program will be advised, at the time of admission, of the courses necessary to complete the Forestry degree.

Applicants must forward official copies of transcripts and course descriptions to the Registrar's Office before an admission decision may be made. By accredited programs, the School of Forestry means Forestry diploma programs which meet, or exceed, the standards specified in "Forestry Technician; a Training Profile". All other applicants with Forestry diploma backgrounds will be considered for admission to the first year of the Honours Bachelor of Science Forestry degree program.

NON-ACADEMIC REQUIREMENT

Forestry 0990 -- First Aid Certificate

All candidates for the Forestry degree must obtain a St. John Ambulance Standard First Aid Certificate, or equivalent, as a requirement for the degree.

Field Work in the Forestry Degree Program

In addition to the field trips and training sessions which are conducted throughout the academic year, all students are required to attend a field school during the period preceding the commencement of first-term lectures.

PROGRAM

FIRST YEAR

Forestry 1035
Forestry 1060
Forestry 1091
Forestry 1094
Biology 1110
Biology 1130

Forest Mensuration I
Dendrology
Introduction to Forestry
Field School
Animal Biology
Plant Biology

Chemistry 1000	Introduction to Chemistry
Engineering 1032	Surveying for Foresters
Engineering 1071	Forestry Road Construction
Geography 1310	Climatology
Geology 1010	Introductory Geology for Foresters
Mathematics 1160	Calculus and Algebra

SECOND YEAR

Forestry 2010	Forest Harvesting
Forestry 2030	Forest Mechanization
Forestry 2035	Forest Inventory
Forestry 2037	Forest Fire Management
Forestry 2065	Aerial Data Acquisition, Management and Analysis Applications for Forestry
Forestry 2066	Fish & Wildlife Management
Forestry 2094	Field School
Biology 3331	Tree Development & Function
Economics 2014	Basic Economics
English 1804	Technical Writing
Mathematics 0411	Elementary Computing
Mathematics 2321	Statistics

Subject to restrictions imposed by course scheduling, one or more of the elective subjects listed below may be selected. Advanced approval of the School will be required for any others.

Forestry 2033	Stand Dynamics
Mathematics 0431	Application of Computers
Business 3039	Business Law

THIRD YEAR

Forestry 3094	Field School
Forestry 3030	Silviculture I
Forestry 3034	Summer Report
Forestry 3035	Forest Soils I
Forestry 3037	Forest Pathology
Forestry 3038	Wood Technology I
Forestry 3061	Forest Resources Management
Forestry 3066	Forest Economics and Evaluation
Forestry 3113	Forest Entomology I
Forestry 3132	Supervisory Skills Development
Forestry 3133	Principles of Business in Forestry

The equivalent of one full course must be selected from the list of electives offered in the H.B.Sc. Forestry program.

Forestry 3033	Wood Technology II
Forestry 3039	Forest Soils II
Forestry 3062	Transportation Systems and Logistics
Forestry 3063	Forest Biometrics
Forestry 3069	Forest Mechanization
Forestry 3130	Forest Ecology
Forestry 3134	Wildlife Management

FOURTH YEAR

Forestry 4094	Field School
Forestry 4031	Forest Resources Management Plan
Forestry 4033	Forest History and Resource Legislation
Forestry 4060	Silviculture II
Forestry 4062	Undergraduate Thesis

Directed Studies Courses:

Either two directed studies courses must be selected from those listed below, or one directed study course plus one full or half course offered by any other department of the University or the School of Forestry in the Forestry Degree or Graduate programs must be selected. All course selections must be approved by the School and must conform to the condition that they may be scheduled, without conflict, with required courses.

Forestry 4160	Silviculture
Forestry 4161	Forest Resources Management
Forestry 4162	Industrial Production Management
Forestry 4163	Operations Research in Forestry
Forestry 4164	Forest Genetics
Forestry 4165	Remote Sensing
Forestry 4166	Forest Resource Economics
Forestry 4167	Fish & Wildlife Conservation
Forestry 4168	Advanced Fire Management
Forestry 4169	Forest Soils
Forestry 4360	Forest Pathology
Forestry 4361	Forest Entomology II
Forestry 4362	Forest Ecology
Forestry 4363	Forest Mechanization and Ergonomics
Forestry 4364	Wood Technology
Forestry 4365	Problem-Solving and Decision-Making in Forest Mgmt.
Forestry 4366	Silvicultural Planning Implementation and Control
Forestry 4367	Forest Mensuration

DEPARTMENT OF GEOLOGY

Graduates of the Department of Geology receive either a B.Sc. (4-year) Geology degree or a B.Sc. (Honours) 4-year degree, and are much sought after by employers in the hard-rock geology sector. However, many of our graduates work in Government Service and Consultant Geological Groups while a few find employment in the Petroleum Industry.

The Geology degree can build on the practical skills obtained in a College diploma program to provide a very sound basis for a career in Geology. Many of our most successful graduates have rounded off their College diploma in Geological Technology with a Science training in just this way. Normally, credit is given for parts of the Geology program at Lakehead by awarding "advanced standing" in courses similar to those in the College diploma, in which a minimum "B" average was obtained. This is done on an individual basis, and no general rules can be given as to amount of advanced standing. However, in the past, College graduates have normally entered the second or third year of the Geology degree program.

Beyond the first year, classes at Lakehead University are normally small, having fewer than fifteen students. Facilities are excellent, with modern electronic analytical equipment being available on campus. Also, students are assigned a microscope for their personal use. In the past, all of our students have found highly remunerative summer employment in the Geological industry.

PROGRAM

FIRST YEAR

Geology 1110	Planet Earth
Geology 1130	Crust of the Earth
Chemistry 1101	Introduction to Modern Chemistry
Mathematics 1160	Calculus and Algebra
Physics 1101	Introductory Physics
Full-course (or two half-course) electives	

SECOND YEAR

Geology 2210	Mineralogy
Geology 2211	Crystallography and Optical Mineralogy
Geology 2213	Introductory Igneous Petrology
Geology 2214	Introductory Sedimentary Petrology
Geology 2310	Geology Map Interpretation
Chemistry 2411	Physical Chemistry I
OR	
Chemistry 3351	Inorganic Chemistry I
Mathematics 0511	Introduction to Computer Science Through Microcomputers
OR	
Mathematics 0411	Elementary Computing
A half-course Physics elective	
An Arts and Science half-course elective	

THIRD YEAR

Geology 3161	Field School
Geology 3212	Geochemistry I
Geology 3216	Ore Petrology

Geology 3217
Geology 3310
Geology 3410
Chemistry 2151
Mathematics 2321
Geography 2351

Metamorphic Petrology
Structural Geology and Tectonics
Depositional Environments
Chemical Instrumentation
Statistics
Geomorphology

FOURTH YEAR

Geology 4112
Geology 4181

Structure and Evolution of the Earth
Techniques and Research in Geology: Thesis
(for Honours students)
Igneous Petrology
Geochemistry II
Geomechanics
Mineral Deposits
Environmental Geology
Plus one full-course equivalent elective (two for those not taking the Honours thesis)

Geology 4215
Geology 4218
Geology 4311
Geology 4411
Geology 4412

DIVISION OF MEDICAL LABORATORY SCIENCES

The Faculty of Arts and Science offers a post Registered Technology (RT) program leading to an Honours Bachelor of Science (Medical Laboratory Sciences). The aim of this program is to enable interested Registered Medical Technologists to increase their theoretical and practical knowledge in this field. The program is structured so as to prepare students for the Advanced Registered Technologist (ART) examinations concurrently in one of the following subjects: Clinical Chemistry, Hematology, Histology, Immunohematology or Microbiology.

----- HONOURS BACHELOR OF SCIENCE (MEDICAL LABORATORY SCIENCES) DEGREE -----

ADMISSION REQUIREMENTS

The applicant must be a Registered Technologist (certified or pending) with the Canadian Society of Laboratory Technologists (C.S.L.T.).

Applicants with the above certification register in the second year of this four-year Honours science program.

PROGRAM

SECOND YEAR

M.L.Sc. 2121*	Practical Medical Laboratory Studies
M.L.Sc. 2151	Introduction to Instrumentation
M.L.Sc. 3011	Laboratory Organization
M.L.Sc. 3213	Human Histology
Biology 2171	Genetics
Chemistry 2211	Organic Chemistry I
Mathematics 0210	Quantitative Methods
One full-course equivalent from the M.L.Sc. electives listed below:	

* Only students in the H.B.Sc. (Medical Laboratory Sciences) program will receive credit for courses marked with an "**"; students who have worked in an approved laboratory may apply for advanced standing in these courses.

THIRD YEAR

M.L.Sc. 3121*	Practical Medical Laboratory Studies
M.L.Sc. 3123	Special Topic
Chemistry 3251	Introductory Biochemistry
Chemistry 2131	Analytical Chemistry II
(for students taking an A.R.T. in clinical chemistry; all other students must take a half-course equivalent M.L.Sc. elective)	
One full-course equivalent from the M.L.Sc. electives listed below	
One full-course equivalent elective	

FOURTH YEAR

M.L.Sc. 4121*	Practical Medical Laboratory Studies
M.L.Sc. 4125	Research Topic
M.L.Sc. 4621	Pathology

Two full-course equivalents from the M.L.Sc. electives listed below:

M.L.Sc. Elective Courses:

M.L.Sc. 3211/4211	Clinical Chemistry
M.L.Sc. 3311/4311	Hematology
M.L.Sc. 3411	Immunohematology
M.L.Sc. 3413	Immunology
M.L.Sc. 3415	Virology
M.L.Sc. 3511/4511	Microbiology
M.L.Sc. 4215	Toxicology
M.L.Sc. 4315	Clinical Endocrinology

Suggested Non-M.L.Sc. Elective Courses:

Biology 4111	Parasitology
Biology 4450	Microtechnique
Chemistry 3271	Bio-organic Chemistry
English 1804	Technical Communication
Physics 1103	Introductory Physics for the Life Sciences

SCHOOL OF NURSING

PHILOSOPHY OF THE SCHOOL OF NURSING

The faculty believe that Nursing is a therapeutic interpersonal process based on the humanistic concept of caring. Nursing activities are directed towards assisting the client to achieve and maintain health, which is perceived as an expression of the degree of success experienced in mediating the elements of the health field. The health field (Lalonde, 1974), subdivided into lifestyle, biology, environment and health care organizations, along with the Nursing process and professional development, are the foundations of the curriculum model and conceptual framework.

The faculty believe man is a unique, dynamic unit, potentially capable of self direction and responsible choice in relating to time and space. Groups of people within society develop dynamic relationships based on common values, beliefs and sentiments in order to meet basic needs and achieve goals.

The faculty believe that studies in the Arts and Sciences should be an integral part of the Nursing program. Knowledge and skills from these areas will enhance a nurse's ability to assist a client in health maintenance, health promotion, health restoration and disease prevention activities.

In keeping with the objectives and purposes of Lakehead University, the faculty believe that in addition to excellence in practice, professional Nursing should be directed towards education, community service and research. The faculty believe a creative environment will help develop the student's highest potential and will encourage continuing personal and professional development.

The program is unique in that it recognizes the health needs and demands of the people of Northwestern Ontario. The graduate of this program is a generalist with a potential for leadership, who is versatile in the use of the Nursing process in a variety of positions and settings in the health care delivery system.

HONOURS BACHELOR OF SCIENCE (NURSING) DEGREE

ADMISSION REQUIREMENTS

Candidates who are Registered Nurses must meet all of the following criteria:

1. Evidence of registration to practise Nursing in Canada.
2. Satisfactory completion of Ontario Grade 13/OAC Chemistry (or equivalent).
3. Mathematics and English (Grade 13/OAC) are strongly recommended.

ADDITIONAL COSTS

A student will require, in addition to tuition and other fees, approximately \$500 to cover the costs of the School uniforms and books. More information will be made available upon registration.

A student is responsible for transportation costs to and from the clinical area in the community.

A student undertaking clinical experience outside of Thunder Bay is responsible for all expenses.

PROGRAM

The School of Nursing has streamlined the Honours Bachelor of Science in Nursing program to allow Registered Nurses to complete the program in two calendar years.

FIRST YEAR

Spring
Elective**

Summer
Nursing 1267

Theories and Concepts in Nursing (August 2 weeks)

Fall/Winter
Nursing 2252
Nursing 2262
Nursing 2264
Biology 2030
Chemistry 2010
Two elective courses**

Health Promotion I
Health Promotion Skills I
Health Promotion Skills II
Principles of Physiology
Organic Chemistry

SECOND YEAR

Spring/Summer
Psychology 2101

Statistics (Prerequisite: Psychology 1100)

Fall/Winter
Nursing 3236
Nursing 4262
Nursing 4264
Nursing 4265
Nursing 4268
Two elective courses**

Current Trends in Health Care Delivery
Leadership
Advanced Nursing Practice II
Advanced Nursing Practice III
Introduction to Nursing Research

** Electives must include: Psychology 1100 and either Sociology 1100 or Anthropology 1032/34.

Elective Courses:

The Nursing half courses listed below may be taken as electives:

Nursing 3139
Nursing 3237
Nursing 4272
Nursing 4274

Gerontology
Transcultural Health Care
Occupational Health and Safety
Advanced Topics in Nursing

DEPARTMENT OF SOCIAL WORK

Social Work is a growing and challenging profession which provides vital services for individual groups, families and communities with various kinds of problems in living. Those involved in Social Work believe in the dignity and worth of each human being and the potential of all persons for continued growth and development throughout their life spans.

The Social Work program at Lakehead, which concentrates on being relevant to the social service needs of northern populations, is an innovative program based on a holistic or ecological view of Social Work practice. This approach stresses the Social Worker's role in providing and facilitating a comprehensive range of helping experiences which relate to the client's needs as a whole person. This requires skill in an integrated practice method which students learn through both classroom courses and field practice experiences where they work in human service agencies with actual client cases under the supervision of a field instructor.

The Bachelor's degree in Social Work is recognized by the profession as the first-level professional degree. Both Honours Bachelor of Social Work programs (one-year and four-year) at Lakehead are fully accredited by the Canadian Association of Schools of Social Work, which is the standard setting body for Canadian Social Work programs.

There are many opportunities open to graduates of the Lakehead University Social Work program: to enter practice after graduation or to undertake graduate studies in Social Work on the Master's level or eventually on the Doctoral level. Career opportunities exist in various settings where Social Work practice takes place, such as in child and family welfare, mental health, corrections, health services, schools and services for the aged. Career advancement opportunities are available to those who qualify in the areas of supervision, program planning, administration, consultation and university teaching.

HONOURS BACHELOR OF SOCIAL WORK DEGREE

ADMISSION REQUIREMENTS

Graduates of diploma programs relating to the social services with, minimally, an overall "B" average may be eligible for advanced standing in up to four full-course equivalents in the first year of the H.B.S.W. program. Such students will be considered on an individual basis upon receipt of full academic transcripts.

The student who has a minimum of two years work experience in an approved social service agency and a diploma in applied arts from a community college, or the student with a minimum of six years work experience who has received supervision from an approved supervisor in a social service agency, is eligible to challenge the Social Work 3501 course. Admissible applicants meeting the above requirements are requested to contact the Co-ordinator of Field Placement to arrange for the necessary challenge procedures.

Students who have completed the first and second years of the program and are seeking admission to the professional years (third and fourth years) are required to formally apply, with documentation, to the Admissions Committee of the Department of Social Work in order that personal and academic suitability may be determined.

During the first two years of their study, students would be well advised to have a second area of specialization, as it may be necessary to limit admission to the professional years of the Social Work program because of the number of available field work placements and field instructors. It is important, therefore, that applicants seeking admission to the professional years of the program submit their application, with the necessary documents, no later than March 1. The candidates receiving the highest ratings in academic and personal suitability will be offered admission to the professional years of the program, depending on the availability of field placements as stated above.

The candidates who are not offered admission to the professional years of the Social Work program may continue working for the Bachelor of Arts degree, but must be careful to satisfy departmental requirements in completing their final courses. They are advised to consult with their department Chairman or Dean.

PROGRAM

The following program of study indicates the compulsory and elective courses which lead to the Honours Bachelor of Social Work degree. If a student wishes to take courses other than those listed below, he/she must obtain the consent of the Chairman of the Department.

FIRST YEAR

Psychology 1100	Introductory Psychology
Social Welfare 1100	Introduction to Social Welfare
Sociology 1100	Introduction to Sociology
Two full-course equivalent Humanities electives	

SECOND YEAR

Social Work 2010/2030	Foundations of Social Work I/II
Two full-course equivalent Social Sciences electives	
Two full-course equivalent electives in Arts	

THIRD YEAR

Social Work 3401	Theory of Social Work Practice I
Social Work 3501	Field Instruction I
Social Work 3407	Foundation Skills for Social Work Interviewing
Social Welfare 3211	Social Policy and Social Welfare
Social Work 3313	Rural Social Work Practice
One full-course equivalent elective in Social Work or Social Welfare	

FOURTH YEAR

Social Work 4401	Theory of Social Work Practice II
Social Work 4501	Field Instruction II
Two full-course equivalent electives in Social Work or Social Welfare	
One full-course equivalent elective in Social Welfare	

Note: See the Calendar for a complete listing of Social Work and Social Welfare courses.

DEPARTMENT OF VISUAL ARTS

The Department of Visual Arts offers its students the fundamental intellectual and artistic training necessary for proper development as a fine artist. The four-year Honours program stresses studio-related skills together with a consistent study of historical and theoretical issues of importance to the artist. The student will be guided through basic methods, materials and concepts while being given sufficient opportunities for creative self-expression.

The first year of the program requires the student to complete one course in basic design, one drawing course, one art history, one intermedia studio (a sampling of painting, printmaking, ceramics and sculpture) and one academic course from another department.

Over the four-year program, students will be required to complete four art history courses, at least three drawing courses, and no fewer than six but as many as nine other studio courses. Additionally, the student must fulfill academic requirements of four to six courses outside of the Department.

In the final year of the program, students are required to devote at least twelve hours per week in their major studio area as well as complete one other studio credit. Special half courses in the final year provide a forum for discussion between students and faculty concerning theoretical, philosophical and practical issues related to art-making as a career (VIS 4130 - Senior Seminar). The other half course in the final year is intended to give the student real working experience in an art-related industry or institution (VIS 4010 - Internship). All other courses in the program are full-year, full-credit courses which begin in September and end in April.

Our Department will provide you with the tools you will need to grow in knowledge, ability and responsiveness as you progress in your chosen career. The faculty is made up of people who have made choices similar to the one you are about to make. They are sensitive to the student who is committed to the Visual Arts and look forward to helping you realize your ambitions.

ADMISSION REQUIREMENTS

The applicant who has successfully completed the first year of a Visual Arts diploma with an average of at least 70% is eligible for admission consideration to the Honours Bachelor of Fine Arts degree program. Each student's college transcript and portfolio will be evaluated on an individual basis in order to determine the credits which may be applied to the H.B.F.A. degree.

Students graduating with a diploma in the Visual Arts will be considered for advanced standing credit toward the H.B.F.A. degree. Upon receipt of an official transcript indicating completion of a program or year level(s), the advanced standing assessment will be made.

PROGRAM

FIRST YEAR

Visual Arts 1000
Visual Arts 1020
Visual Arts 1060
Visual Arts 1080
One full-course elective from an approved list of Social Science courses: Anthropology, Economics, Geography, Political Studies, Psychology, Sociology, Social Work

Basic Design
Introductory Drawing
Intermedia Studio
History of Western Art

SECOND YEAR

Visual Arts 2021
One Visual Arts studio from second-year level:
Visual Arts 2041
Visual Arts 2101
Visual Arts 2121
Visual Arts 2143
One studio from second year or an elective (Visual Arts excluded)*
One upper-level Art History: Visual Arts 2220 - Twentieth Century Art History recommended.
One full-course elective from an approved list of Social Science courses, as named above.

Figure Drawing
Intermediate Painting
Intermediate Ceramics
Intermediate Sculpture
Intermediate Printmaking

THIRD YEAR

Visual Arts 3021
One Visual Arts studio from third-year level (which continues from second-year choice):
Visual Arts 3001
Visual Arts 3041
Visual Arts 3101
Visual Arts 3141
One second or third year studio or an elective (Visual Arts excluded)*
Visual Arts 3821
One full-course elective from an approved list of Humanities courses: English, History, Languages, Classics, Mathematical Sciences, Music, Philosophy, Religious Studies

Advanced Drawing
Environmental Design
Advanced Painting
Advanced Ceramics
Advanced Printmaking
Special Topics in Art History

FOURTH YEAR

Visual Arts 4010 (half course)
Visual Arts 4130 (half course)
Visual Arts 4140
One studio from third or fourth-year level. Fourth-year level studios are as follows:
Visual Arts 4003
Visual Arts 4021
Visual Arts 4041
Visual Arts 4101
Visual Arts 4203
One full-course elective from outside the Department of Visual Arts

Internship
Senior Seminar
Major Studio
Exploratory Directions
Senior Drawing Seminar
Senior Painting Seminar
Senior Ceramics Seminar
History of Canadian Art

*Students wishing to pursue a Master's degree in studio art (M.F.A.) are advised to select the studio option.

PORTFOLIO REQUIREMENTS

The portfolio should contain the following material:

1. Two finished drawings.
2. Two finished works in colour.
3. One work: a painting in oils or acrylics OR a multicoloured print OR a drawing for a ceramic work showing several views OR a drawing for a sculpture showing several views.
4. One sketchbook.
5. Four other works selected by the applicant.

All works, which must be original concepts created by the applicant, should be unframed and no larger than 18" x 24". For larger pieces, the applicant may submit quality photographs or slides of these works.

The applicant's name and address should be on all submitted material. The portfolio should be mailed prepaid to the Department of Visual Arts, Lakehead University, Thunder Bay, Ontario, P7B 5E1, OR personally delivered to the Department of Visual Arts, 210 South Algoma Street, Room 1004.

Portfolios will be returned by mail collect, and while every care will be taken with the portfolios while they are at Lakehead University, no responsibility will be assumed by the institution for loss or damage to the contents.

LAKEHEAD UNIVERSITY IN BRIEF

The University

Lakehead University is one of the province's newest universities, but its roots date back to 1946 when the Lakehead Technical Institute was established. In 1956, the Lakehead College of Arts, Science and Technology was established and, in 1965, the College became Lakehead University.

The Campus

Located on approximately 150 hectares, the campus is accessible to all parts of Thunder Bay, including the major transportation terminals, and is adjacent to the Trans-Canada Highway. Our academic buildings overlook a man-made lake in the centre part of the campus, and the residence complex occupies a wooded area along the banks of the McIntyre River. The river and lake provide canoeing in summer, and skating and cross-country skiing in winter. In addition, the C. J. Sanders Fieldhouse offers many athletic facilities including an Olympic-sized swimming pool.

The Community

Thunder Bay, with a population of 121,000, offers the conveniences and services of a large city. Famous for its harbour and spectacular surroundings, Thunder Bay is also the location of the legendary "Sleeping Giant".

Enrollment

3800 students study full-time at Lakehead, while another 2000 part-time students are enrolled in evening, spring and summer programs.

Faculty

Our energetic and dedicated faculty numbers approximately 250, more than half of whom hold earned doctorate degrees.

Academic Year

Lakehead University operates on a year-round basis. The fall term begins in early September and concludes in the middle of December. Winter term starts in the first week of January, concluding in late April. In addition, Lakehead offers a limited number of courses beginning in February. Our spring term (which begins in early May) and our summer term (starting in June) offer intensive six-week programs.

Student Life

The list of social and recreational activities at Lakehead includes "something for everyone": sports events, dances, pubs, movies, skiing, swimming, squash, hiking, cycling, camping, concerts, theatre, tennis and skating.

Accommodation

The residence facilities at Lakehead have recently been expanded to include Townhouse accommodation. Residence now consists of the new Townhouses as well as Prettie Residence and Bartley Residence. The Townhouses, which are available to upper-year students, have single bedrooms. Although there are both single and double rooms in Prettie and Bartley Residences, single rooms are usually allotted to students who have been in residence for more than a year. Prettie Residence houses mainly female students while Bartley Residence is a series of connected houses that are either all male, all female



Lakehead University
A Northern Vision