11.2 Program information - Bachelor of Education (Consecutive)

11.2.1 General information

The Faculty of Education offers a one-year consecutive program in the preparation of Primary-Junior (P/J) and Intermediate-Senior (I/S) teachers. The emphasis on technology in teaching is a defining element of UOIT's Bachelor of Education program.

Teacher candidates use technology in their own learning experiences so that they will understand how to integrate technology into classroom practice. Cooperative learning activities based on realistic problems and scenarios prepare candidates for situations which they will likely encounter in their practica and their own classrooms upon graduation. Courses use inquiry and problem-solving approaches with focus on the importance of subject matter as the catalyst for teacher-learner interaction, as well as individual learning and teaching in shaping learning conditions. A required course in understanding and applying educational research is a distinctive feature of this program, as is an optional course in advanced instructional design.

11.2.2 Admission requirements

Selection of candidates is based on the following combination of academic criteria, experience and references:

11.2.2.1 Primary/Junior program

Applicants will hold an undergraduate degree from a recognized university, with an overall average of 70 percent in their last two years of full-time study. Preference will be given to students with four-year honours degrees.

Because Primary/Junior teachers deal with a wide range of subject areas, it is desirable that applicants have a broad academic background. In assessing the academic breadth of Primary/Junior applicants, the Faculty of Education gives preference to candidates who have one or more 3-credit hour undergraduate or graduate courses in the subject groupings listed below:

- English/Linguistics/Languages
- Mathematics/Statistics
- Physical Sciences/Life Sciences
- Visual Arts/Music/Drama
- Social Sciences/Humanities

Clearly, very few applicants will have coursework in all of the above areas; however, we consider that the more areas an applicant has covered, the stronger the application.

Each candidate must have received the required undergraduate degree by July 1, 2007.

The application service (through Ontario Universities' Application Centre - OUAC) opens mid-September for Professional Program Applications to the Teacher Education Application Service (TEAS) and closes December 1. A complete application includes:

1) Transcripts (Applicants must ensure that any courses in progress are listed on the OUAC/TEAS application form, especially when appropriate prerequisites do not appear on the official transcripts being forwarded.)

2) A supplementary application, consisting of:
   - A personal profile addressing skills and related work experience, and
   - Letters of reference.

3) Evidence of oral and written proficiency in English.

An interview may be required.

All successful applicants will be required to present a clear tuberculin (TB) test and criminal record check upon registration.

Enrolment in the program is competitive. Consequently, possession of the minimum requirements does not guarantee admission. Acceptance is based on the number and calibre of applications received in a given year for the spaces available in the program.

11.2.2.2 Intermediate/Senior (I/S) program

Applicants will hold an undergraduate degree from a recognized university, with an overall average of 70 percent (GPA= 2.7) in their last year of full-time study. Preference will be given to students with four-year honours degrees. Each candidate must have received the required undergraduate degree by July 1, 2007.

Semester 2 (13.5 credit hours)
EDUC 3800U Teaching for Individual Needs and Diversity
EDUC 4240U Understanding Educational Research, Theory and Practice
EDUC 4590U Assessment and Evaluation
EDUC 4901U Field Experience and Practicum III (28 days)
Curriculum Studies II **
Curriculum Studies II **
One of:
EDUC 3460U Problem Based Learning
EDUC 3470U Issues in Education
EDUC 3480U Outdoor and Experiential Education
EDUC 3560U Religious Education: Teaching in Ontario Catholic Schools
EDUC 4610U Advanced Instructional Design
*Students will complete two of the following courses in semester 1: CURS 4100U, CURS 4110U, CURS 4120U, CURS 4130U, CURS 4140U, CURS 4150U, CURS 4160U, CURS 4180U, one for each teachable area under which he/she was admitted.
**Students will complete two of the following courses in semester two: CURS 4101U, CURS 4111U, CURS 4121U, CURS 4131U, CURS 4141U, CURS 4151U, CURS 4161U, CURS 4181U. These courses will be chosen so that a student completes a second course in curriculum studies for each teachable subject area under which he/she was admitted.
Curriculum Studies courses:
CURS 4100U and CURS 4101U I/S Biology
CURS 4110U and CURS 4111U I/S English
CURS 4120U and CURS 4121U I/S Chemistry
CURS 4130U and CURS 4131U I/S Physics
CURS 4140U and CURS 4141U I/S Mathematics
CURS 4150U and CURS 4151U I/S Visual Arts
CURS 4160U and CURS 4161U I/S Computer Studies
CURS 4180U and CURS 4181U I/S General Science

11.3 Program information - Concurrent Education

Bachelor of Science (Honours)/Bachelor of Education (Intermediate/Senior)
- BSc (Hons)/BEd

11.3.1 General information

The Faculty of Education's Concurrent Education program prepares students to teach in the areas of science, mathematics or computer science. The emphasis on technology in teaching is a defining element of the Concurrent Education programs. Students use technology in both their science and education classes so that they will understand how to integrate technology into classroom practice.

Cooperative learning activities based on realistic problems and scenarios prepare candidates for situations which they will likely encounter in their practica and their own classrooms upon graduation. There is a specific focus on the new and very rigorous Ontario mathematics and science curriculum. Graduates of these programs will be prepared to teach in the Intermediate/Senior (I/S) divisions (Grades 7-12) of Ontario schools.

11.3.2 Admission requirements

Current Ontario secondary school students must complete the Ontario Secondary School Diploma (OSSD) with a minimum overall average of 75 percent on six 4U or

Program details

The order and timing of courses may be changed subject to availability and prerequisite requirements.

YEAR 1

Semester 1 (15 credit hours)
BIOL 1010U Biology I
CHEM 1010U Chemistry I
CSCI 1000U Scientific Computing Tools
MATH 1010U Calculus I
PHY 1030U Physics for Biosciences I*

Semester 2 (15 credit hours)
BIOL 1020U Biology II
CHEM 1020U Chemistry II
EDUC 2900U Introduction to Teaching and Field Experience I (10 days)
MATH 1020U Calculus II
PHY 1040U Physics for Biosciences II*
*Students who wish to have physics as one of their teachable subjects should take PHY 1010U and PHY 1020U. However, students who achieve a B standing or higher in both PHY 1030U and PHY 1040U will be permitted to proceed to second-year physics courses.

YEAR 2

Semester 1 (15 credit hours)
BIOL 2010U Introductory Physiology
BIOL 2030U Cell Biology
CHEM 2020U Introduction to Organic Chemistry
STAT 2020U Statistics and Probability for Biological Science
One course from second teachable subject

Semester 2 (15 credit hours)
BIOL 2020U Genetics and Molecular Biology
BIOL 2040U Biochemistry
EDUC 2901U Field Experience II (15 days)
EDUC 3750U Learning and Human Development
One course from second teachable subject
One elective

YEAR 3

Semester 1 (15 credit hours)
BIOL 3050U Developmental Biology
EDUC 3610U Contemporary Educational Practice
BIOL 3030U Microbiology and Immunology
Two courses from second teachable subject

Semester 2 (15 credit hours)
EDUC 4902U Field Experience III (Practicum) (20 days)
Two courses from biology
Three electives

YEAR 4

Semester 1 (15 credit hours)
Three courses from biology
BIOL 4430U Directed Studies in Biology or
BIOL 4410U Thesis Project in Biology I
One elective

Semester 2 (15 credit hours)
BIOL 4080U Bioethics
Two courses from biology
BIOL 4420U Thesis Project in Biology II or
One elective
One elective

YEAR 5

Semester 1 (13.5 credit hours)
EDUC 3400U Technology in I/S Education
EDUC 4380 Analysis and Management of Classroom Behaviour
EDUC 4903U Field Experience IV (Practicum) (33 days)
CURS 4000U Core Curriculum
Curriculum Studies I from first teachable
Curriculum Studies I from second teachable
One education elective

Semester 2 (16.5 credit hours)
EDUC 3800U Teaching for Individual Needs and Diversity
EDUC 4240U Understanding Educational Research, Theory and Practice
EDUC 4590U Assessment and Evaluation
EDUC 4904U Field Experience V (Practicum) (28 days)
Curriculum Studies II from first teachable
Curriculum Studies II from second teachable
Two education electives

Note 1: Second teachable subjects

1. If Computing Science provides the second teachable (Computer Studies), one of the unspecified science courses will have to be a computing science course.
2. Statistics and Probability or Introduction to Organic Chemistry count as one of the required courses for mathematics or chemistry second teachables, respectively.

Note 2: Electives and breadth requirements

Students must complete 24 elective credit hours; nine of these credit hours must be in science courses. In order to satisfy breadth requirements for the BSc 12 elective credit hours must be in courses outside the Faculty of Science; two education electives taken in the fifth year of the program will be included in this total.

Note 3: Education electives

Students may take education electives prior to year five only if they have completed year two requirements and have a GPA of 2.7.

Note 4: Directed Studies and Thesis Project courses

Students who meet the requirements will take BIOL 4430U Directed Studies in Biology in year four. BIOL 4430U may be taken in either semester by interchanging with an elective. Students have the option to apply to do a two-course sequence consisting of BIOL 4410U and BIOL 4420U Thesis Project in Biology I and II in year four, in place of BIOL 4430U plus one elective. Opportunities for this option are limited; students must apply to the science fourth-year thesis coordinator by April 30 following completion of the first three years of the program.

YEAR 4

Semester 1 (15 credit hours)
CHEM 4040U Physical Chemistry
CHEM 4050U Environmental Chemistry
CHEM 4430U Directed Studies in Chemistry or
CHEM 4410U Thesis Project in Chemistry I
Two electives

Semester 2 (15 credit hours)
CHEM 4010U Industrial Chemistry
CHEM 4060U Chemical and Molecular Spectroscopy
One course from second teachable subject
CHEM 4420U Thesis Project in Chemistry II or
One science elective
One elective

YEAR 5

Semester 1 (13.5 credit hours)
EDUC 3400U Technology in I/S Education
EDUC 4380U Analysis and Management of Classroom Behaviour
EDUC 4903U Field Experience IV (Practicum) (33 days)
CURS 4000U Core Curriculum
Curriculum Studies I from first teachable subject
Curriculum Studies I from second teachable subject
One education elective

Semester 2 (13.5 credit hours)
EDUC 3800U Teaching for Individual Needs and Diversity
EDUC 4240U Understanding Educational Research, Theory and Practice
EDUC 4590U Assessment and Evaluation
EDUC 4904U Field Experience V (Practicum) (28 days)
Curriculum Studies II from first teachable subject
Curriculum Studies II from second teachable subject
Two education electives

Note 1: Second teachable subjects

1. If Computing Science provides the second teachable (Computer Studies), the senior science elective will have to be a computing science course.
2. Statistics and Probability counts as one of the required courses for mathematics second teachable.

Note 2: Electives and breadth requirements

Students must complete 18 elective credit hours. In order to satisfy breadth requirements for the BSc 12 elective credit hours must be in courses outside the Faculty of Science; two education electives taken in the fifth year of the program will be included in this total.

Note 3: Education electives

Students may take education electives prior to year five only if they have completed year two requirements and have a GPA of 2.7.

Note 4: Directed Studies and Thesis Project courses

Students who have completed all requirements of the first three years will take CHEM 4430U Directed Studies in Chemistry in year four. CHEM 4430U may be taken in either semester by interchanging with an elective. Students have the option to apply to do a

two-course sequence consisting of CHEM 4410U and CHEM 4420U Thesis Project in Chemistry I and II in year four, in place of CHEM 4430U plus one elective. Opportunities for the thesis option are limited; students must apply to the science fourth-year thesis coordinator by April 30 following completion of the first three years of the program.

11.3.6.3 Computing Science major / Computer Studies first teachable

Program Details

The order and timing of courses may be changed subject to availability and prerequisite requirements.

YEAR 1

Semester 1 (15 credit hours)
CHEM 1010U Chemistry I
CSCI 1000U Scientific Computing Tools
MATH 1010U Calculus I
MATH 2050U Linear Algebra
PHY 1010U Physics I*

Semester 2 (15 credit hours)
CHEM 1020U Chemistry II
CSCI 1020U Fundamentals of Programming
EDUC 2900U Introduction to Teaching and Field Experience I (10 days)
MATH 1020U Calculus II
PHY 1020U Physics II*
*Students who wish to have physics as one of their teachable subjects should take PHY 1010U and PHY 1020U. However, students who achieve a B standing or higher in both PHY 1030U and PHY 1040U will be permitted to proceed to second-year physics courses.

YEAR 2

Semester 1 (15 credit hours)
CSCI 2010U Principles of Computer Science
CSCI 2050U Computer Architecture
CSCI 2110U Discrete Structures in Computer Science
STAT 2010U Statistics and Probability for Physical Science
One course from second teachable area

Semester 2 (15 credit hours)
BIOL 1840U Biology for Engineers
CSCI 2020U Software Systems Development and Integration
EDUC 2901U Field Experience II (15 days)
EDUC 3750U Learning and Human Development
MATH 2072U Computational Science I
One course from second teachable area

YEAR 3

Semester 1 (15 credit hours)
CSCI 3020U Operating Systems
CSCI 3030U Database Systems and Concepts
CSCI 3040U System Analysis and Design in Applications
CSCI 3070U Analysis and Design of Algorithms
EDUC 3610U Contemporary Educational Practice

Semester 2 (15 credit hours)
CSCI 3050U Computer Architecture II
CSCI 3060U Software Engineering
CSCI 3090U Scientific Visualization and Computer Graphics
CSCI 4020U Compilers
EDUC 4902U Field Experience III (Practicum) (20 days)
One course from second teachable subject

YEAR 4

Semester 1 (15 credit hours)
CSCI 3010U Simulation and Modelling
CSCI 3150U Computer Networks
Computing science elective
One course from second teachable subject
CSCI 4400U Thesis Project

Semester 2 (15 credit hours)
CSCI 4040 Ethics, Law and the Social Impact of Computing
Two computing science electives
Two electives

YEAR 5

Semester 1 (16.5 credit hours)
EDUC 3400U Technology in I/S Education
EDUC 4380U Analysis and Management of Classroom Behaviour
EDUC 4903U Field Experience IV (Practicum) (33 days)
CURS 4000U Core Curriculum
Curriculum Studies I from first teachable subject
Curriculum Studies I from second teachable subject
One education elective

Semester 2 (13.5 credit hours)
EDUC 3800U Teaching for Individual Needs and Diversity
EDUC 4240U Understanding Educational Research, Theory and Practice
EDUC 4590U Assessment and Evaluation
EDUC 4904U Field Experience V (Practicum) (28 days)
Curriculum Studies II from first teachable subject
Curriculum Studies II from second teachable subject
Two education electives

Note 1: Second teachable subjects

1. Biochemistry may count as one of the required courses for Chemistry as a second teachable.
2. Statistics and Probability counts as one of the required courses for a Mathematics additional teachable; since there are six mathematics courses specified in the program, mathematics is always an additional teachable in this program.
3. If Biology is the second teachable, students must take Biology I and Biology II in second year, replace Biology for Engineers by a liberal studies elective in second year, and replace two liberal studies electives in fourth year by two additional biology courses.

Note 2: Electives and breadth requirements

Students must complete 12 elective credit hours aside from the computing science electives. In order to satisfy breadth requirements for the BSc all 12 elective credit hours must be in courses outside the Faculty of Science; two education electives taken in the fifth year of the program will be included in this total.

Note 3: Education electives

Students may take education electives prior to year five only if they have completed year two requirements and have a GPA of 2.7.

Note 4: Computing science electives

CSCI 4610U Artificial Intelligence
CSCI 4620U Human-Computer Interaction
CSCI 4630U High-Performance Computing
CSCI 4640U Distributed Computing
CSCI 4650U Elements of Theory of Computation
MATH 4020U Computational Science II

Note 5: Thesis Project course

Students who have completed all requirements of the first three years will take CSCI 4400U Thesis Project in year four.

11.3.6.4 Applied and Industrial Mathematics major / Mathematics first teachable

Program Details

The order and timing of courses may be changed subject to availability and prerequisite requirements.

YEAR 1

Semester 1 (15 credit hours)
BIOL 1010U Biology I
CHEM 1010U Chemistry I
CSCI 1000U Scientific Computing Tools
MATH 1010U Calculus I
PHY 1010U Physics I*

Semester 2 (15 credit hours)
BIOL 1020U Biology II
CHEM 1020U Chemistry II
EDUC 2900U Introduction to Teaching and Field Experience I (10 days)
MATH 1020U Calculus II
PHY 1020U Physics II*

* Students who wish to have Physics as one of their teachable subjects should take PHY 1010U and PHY 1020U. However, students who achieve a B standing or higher in both PHY 1030U and PHY 1040U will be permitted to proceed to second-year physics courses.

YEAR 2

Semester 1 (15 credit hours)
MATH 2010U Advanced Calculus I
MATH 2050U Linear Algebra
MATH 2080U Discrete Mathematics
STAT 2010U Statistics and Probability for Physical Science
One course from second teachable subject

Semester 2 (15 credit hours)
CSCI 1020U Fundamentals of Programming
EDUC 2901U Field Experience II (Practicum - 15 days)

MATH 2020U Advanced Calculus II
MATH 2060U Differential Equations
MATH 2072U Computational Science I

YEAR 3

Semester 1 (15 credit hours)

Note 1: Second teachable subjects

1. Biochemistry counts as one of the required courses for Chemistry as a second teachable.
2. If Computing Science is the second teachable (Computer Studies), one or two of the unspecified courses in the second teachable can be replaced by electives, since there are already four computing science courses specified explicitly in the program.

Note 2: Electives and breadth requirements

Students must complete 18 elective credit hours; three of these credit hours must be in science courses. In order to satisfy breadth requirements for the BSc 12 elective credit hours must be in courses outside the Faculty of Science; two education electives taken in the fifth year of the program will be included in this total.

Note 3: Education electives

Students may take education electives prior to year five only if they have completed year two requirements and have a GPA of 2.7.

Note 4: Thesis Project course

Students who have completed all requirements of the first three years will take MATH 4400U Thesis Project in year four.

Note 5: Topics in Applied Mathematics I and II

At least one of MATH 4041U or MATH 4042U must be completed.

11.3.6.5 Physics major / Physics first teachable

Program details
The order and timing of courses may be changed subject to availability and prerequisite requirements.

YEAR 1

Semester 1 (15 credit hours)
BIOL 1010U Biology I
CHEM 1010U Chemistry I
CSCI 1000U Scientific Computing Tools
MATH 1010U Calculus I
PHY 1010U Physics I

Semester 2 (15 credit hours)
BIOL 1020U Biology II
CHEM 1020U Chemistry II
EDUC 2900U Introduction to Teaching and Field Experience I (Practicum - 10 days)
MATH 1020U Calculus II
PHY 1020U Physics II

YEAR 2

Semester 1 (15 credit hours)
MATH 2050U Linear Algebra
PHY 2010U Electricity and Magnetism I
PHY 2030U Mechanics I
PHY 2060U Nuclear Physics and Relativity
STAT 2010U Statistics and Probability for Physical Science

Semester 2 (15 credit hours)
EDUC 2901U Field Experience II (Practicum - 15 days)
EDUC 3750U Learning and Human Development
MATH 2060U Differential Equations
PHY 2020U Electricity and Magnetism II
PHY 2040U Mechanics II
PHY 2050U Thermodynamics and Heat Transfer

YEAR 3

Semester 1 (15 credit hours)
EDUC 3610U Contemporary Educational Practice
PHY 3010U Statistical Mechanics I
PHY 3020U Quantum Mechanics I
PHY 3030U Electronics
One course from second teachable subject

Semester 2 (15 credit hours)
EDUC 4902U Field Experience III (Practicum - 20 days)
PHY 3040U Mathematical Physics
PHY 3050U Waves and Optics
PHY 3060U Fluid Mechanics
One course from second teachable subject
One elective

YEAR 4

Semester 1 (15 credit hours)
PHY 4020U Quantum Mechanics II
One course from second teachable subject
Senior physics elective - any other 4000 level physics course
PHY 4430U Directed Studies in Physics or
PHY 4410U Thesis Project in Physics I
One elective

Semester 2 (15 credit hours)
PHY 4010U Statistical Mechanics II
PHY 4030U Modern Physics
One course from second teachable subject
Senior physics elective - any other 4000 level physics course
PHY 4420U Thesis Project in Physics II or
One elective

YEAR 5

Semester 1 (16.5 credit hours)
EDUC 3400U Technology in I/S Education
EDUC 4380U Analysis and Management of Classroom Behaviour
EDUC 4903U Field Experience IV (Practicum - 33 days)
CURS 4000U Core Curriculum
Curriculum Studies I from first teachable subject
Curriculum Studies I from second teachable subject
One education elective

Semester 2 (13.5 credit hours)
EDUC 3800U Teaching for Individual Needs and Diversity
EDUC 4240U Understanding Educational Research, Theory and Practice
EDUC 4590U Assessment and Evaluation
EDUC 4904U Field Experience V (Practicum - 28 days)
Curriculum Studies II from first teachable subject
Curriculum Studies II from second teachable subject
Two education electives

Note 1: Second teachable subjects

1. If Computing Science provides the second teachable (Computer Studies), one of the unspecified science courses will have to be a computing science course.
2. Statistics and Probability or Biochemistry count as one of the required courses for Mathematics or Chemistry second teachables, respectively.

Note 2: Electives and breadth requirements

Students must complete 12 elective credit hours, aside from the senior physics electives. If the second teachable is not Mathematics, one of the electives must be a mathematics course at the second year (MATH 2000-series) or higher level not explicitly specified in the program map. In order to satisfy breadth requirements for the BSc 12 elective credit hours must be in courses outside the Faculty of Science; two education electives taken in the fifth year of the program will be included in this total. An exception will be made for students who take the thesis project sequence (see note 4 below) and who do not have mathematics as their second teachable; in that case only 9 elective credit hours must be in courses outside the Faculty of Science.

Note 3: Education electives

Students may take education electives prior to year five only if they have completed year two requirements and have a GPA of 2.7.

Note 4: Directed Studies and Thesis Project courses

Students who have completed all requirements of the first three years will take PHY 4430U Directed Studies in Physics in year four. PHY 4430U may be taken in either semester by interchanging with an elective. Students may optionally apply to do a two-course sequence consisting of PHY 4410U and PHY 4420U Thesis Project in Physics I and II in year four, in place of PHY 4430U plus one elective. Opportunities for the thesis option are limited; students must apply to the science fourth-year thesis coordinator by April 30 following completion of the first three years of the program.

11.3.7 General Science as a teachable subject

General Science as a teachable subject involves a combination of biology, chemistry and physics courses. Students who wish to have General Science as a first or a second teachable subject should consult the Faculty of Science student advisor.

11.3.8 Minor programs

Students may complete minor programs in Biology, Chemistry, Mathematics, Physics or Computational Science by making appropriate selections of courses in the second teachable subject. Please consult the detailed descriptions of minor programs in the Faculty of Science section (section 15) of this calendar. Completion of minor programs will be noted on students' transcripts but will not appear on the degree.