

# ***Adult Basic Education***

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## ***in British Columbia's Public Post-Secondary Institutions***

An Articulation Handbook  
2006-2007 Edition



**Produced by the**  
Province of British Columbia, Ministry of Advanced Education

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## **INTRODUCTION**

This is the twenty-first edition of the ABE Articulation Handbook for British Columbia's public post-secondary institutions. It has been updated for 2006-07 through the dedicated efforts of the educators who participate in the working and steering committees. Articulation is a dynamic process that will never be completed. It brings order to the Adult Basic Education program area offered by the post-secondary system and facilitates the transfer of course work and credits between participating institutions. The articulation process facilitates dialogue and sharing among professionals and it has effectively raised the status of this program area. The biggest beneficiaries, however, are our ABE students.

Articulation has been supported by development of curriculum resources in the various disciplines that include:

Computer Studies  
Education and Career Planning  
English  
First Nations  
Fundamental Studies  
Science: Biology, Chemistry and Physics  
Mathematics  
Social Science: First Nations, Geography, History, Law and Psychology

In 2006-07, many articulated ABE courses are being offered online through the province's e-merge initiative. For more information, go to: [www.bccampus.ca](http://www.bccampus.ca)

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## HISTORY OF ABE ARTICULATION

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ABE articulation in British Columbia began in 1983. After much deliberation and consultation, the ABE Articulation Development Committee produced a provincial framework and common terminology as a foundation to the process by early 1985. The ABE Articulation Steering Committee was established to oversee the implementation and on-going process of articulation across the post-secondary system. The Steering Committee set up working committees in each of the major discipline areas, with members from all 15 colleges and the Open Learning Agency. The discipline working committees developed generic outlines and a grid of equivalencies by subject and course for the 16 participating institutions.

In 1986, the then Ministry of Advanced Education and Job Training validated the process by producing the ABE Provincial Diploma to be awarded to any student completing the requirements for secondary school graduation as laid out by the ABE framework. In 1987, the ABE Framework and Diploma were presented to the provincial universities and British Columbia Institute of Technology. Eventually, all of these institutions recognized the Diploma as an official credential for entry into university studies.

In 1991, the Steering Committee implemented a review of the whole ABE Articulation process. This culminated in a report presented to the Steering Committee in June 1992. The 1993 Articulation Handbook included a revised statement on the purpose of articulation.

In 1995, a Ministry of Education/Ministry of Skills, Training and Labour Joint Committee on Adult Basic Education made recommendations that included, among others, a common adult graduation credential and an articulation process between school district adult programs and the public post-secondary institutions. Work on the recommendations was put on hold until the college tuition-free ABE announcement of May 1998. At that time, the ABE Transitions Project was set up between the Ministry of Education and the Ministry of Advanced Education, Training and Technology. The overall goal of the project was to work towards a coordinated ABE system for British Columbia by developing a more integrated, learner-centred approach to ABE programming. Two of the specific objectives of the project were the implementation of a common credential for adults and improved articulation of courses.

In May 1999, the Ministers announced the British Columbia Adult Graduation Diploma (BCAGD) – “The Adult Dogwood” – would replace the old Adult Dogwood and the ABE Provincial Diploma. In May 2000, amendments were made to the *College and Institute Act*, the *Institute of Technology Act*, and the *Open Learning Agency Act*, to recognize this new joint credential. Amendments were made to the *School Act* and the *Independent School Act* to recognize the credential as well.

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# **THE ABE ARTICULATION PROCESS**

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## **The Purpose of Articulation**

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The purpose of ABE articulation is to ensure learners have access to quality courses, receive appropriate credits and are able to transfer easily among publicly-funded colleges, university colleges, universities and institutes in British Columbia. Articulation also involves liaison with the school system's ABE programs to facilitate transfer of students back and forth between school district and college ABE programs.

NOTE: The BC Council on Admissions and Transfer (BCCAT) works to further the aim of transitions of adult learners.

For further information on the work and publications of BCCAT, visit the website: <http://www.bccat.bc.ca>

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## **The Goals of ABE Articulation**

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The goals of ABE articulation are:

1. to facilitate the transfer of students from one educational institution to another;
2. to facilitate entry of students into further education programs;
3. to lend credibility to the ABE Certificates/Diplomas for students seeking employment or further education;
4. to provide a common terminology throughout the province for levels of achievement;
5. to provide for exchange of information;
6. to set and maintain learning outcomes which respect the autonomy of colleges and institutes to create equivalent course content;
7. to set course requirements for diplomas and certificates;
8. to assist, through working committees, in the development of guidelines for the content of courses identified for different levels of certification;
9. to provide a forum for the discussion of ABE issues;
10. to provide a common voice when addressing external bodies;
11. to encourage development and exchange of curriculum materials.

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## **Steering Committee Business**

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### **I. Representatives to the ABE Steering Committee**

#### **Appointment/Membership:**

1. The ABE Steering Committee Chairperson requests a representative and an alternate from each institution through the Chief Executive Officer of the institution.
2. A formal appointment is made by the institution and recorded by the Steering Committee Chairperson.
3. The desirable attributes in a representative should include:
  - knowledge of field and programs in ABE
  - knowledge about the institution's development of ABE
  - commitment to the articulation process.
4. Appointment is for a two-year term that is renewable.
5. A representative carries a single, institutional vote.



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### **Role of a Representative:**

As the prime contact person for ABE articulation within the college, between colleges and for other related groups, committees or agencies in the field which may be affected by articulation, the representative:

1. attends Steering Committee meetings;
2. brings institution's concerns, plans and continuing progress in articulation work to the Steering Committee;
3. encourages and facilitates institutional participation in articulation working committees;
4. facilitates articulation work in the college by:
  - communicating with all parts and persons in ABE or relating to ABE,
  - promoting the rationalization of ABE in the light of continuing articulation, and
  - assisting in the update of college brochures, services, etc. regarding ABE articulation.
5. maintains contact with the college's member of BCCAT;
6. provides regular reports to his/her college on articulation activity;
7. prepares and submits an annual report to the Steering Committee on changes, progress etc. in his/her institution that have occurred because of ABE articulation;
8. advises his/her institute's Administration in matters relating to articulation.

## **II. Chairperson of the Steering Committee**

### **Role of the Chairperson:**

The Chairperson of the ABE Steering Committee:

1. prepares the agendas for meetings;
2. sends out a notice of a meeting and its agenda well in advance of each meeting;
3. orients new Working Committee Chairs;
4. submits recommendations and concerns with respect to the articulation process to the BCCAT;
5. chairs meetings of the Steering Committee;
6. keeps informed of all articulation developments in relation to Working Committee developments, local college developments, liaison with receiving institutions;
7. represents the ABE Articulation process when needed and as appropriate;
8. confers with Working Chairpersons on agendas for all meetings;
9. attends as many Working Committee meetings as possible as a non-voting member;
10. attends meetings of the Deans and Directors of Developmental Education;
11. deals with problems and inquiries regarding articulation that arise in the field;
12. liaises with the Ministry on information and problems related to articulation;
13. keeps the ABE articulation policy manual up to date.

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## **Working Committee Business: Terms of Reference**

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### **I. Tasks of a Working Committee**

A subject Working Committee:

1. reviews college course outlines at the respective levels;
2. comes to a consensus on learning outcomes derived from existing courses at each level of the framework;
3. if appropriate, reviews related curriculum which may impact upon articulation, i.e. Ministry of Education;
4. articulates college courses with the described learning outcomes and produces a provincial course transfer guide;

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5. makes recommendations through the chairperson to the Steering Committee about such things as curriculum development, course development;
  6. understands that course articulation (Advanced & Provincial Levels) with the universities and institutes is ultimately the responsibility of each college;
  7. understands that the process of articulation is primarily one of the exchange of information and setting of learning outcomes, and not one of prescription of length of course, instructional methodology or materials;
  8. establishes and maintains links with other articulation committees in the same discipline whenever feasible on issues related to university transfer, career/ technical/vocational areas, K-12, and Continuing Education ABE.

## **II. Tasks of a Chairperson**

### **A. Procedure**

A Working Committee Chairperson:

1. is elected from within the Working Committee;
2. serves a two year (renewable) term;
3. becomes a member of the Steering Committee and the Executive of the Steering Committee;
4. calls annual meetings in the Lower Mainland at least two months prior to the annual Steering Committee meeting;
5. discusses a proposed agenda with the Steering Committee chairperson prior to mail-out;
6. sends a copy of an agenda one month in advance of the meeting to the Working Committee members, the Steering Committees, the Ministry, and to all College principals;
7. encourages every college and institution to send or designate a representative who will act as a spokesperson for the institution;
8. writes an annual report which includes a goal statement, a list of generic topics, a course transfer guide, and the recommendations of the Working Committee to the Steering Committee that may include any curriculum proposals;
9. brings the annual report for distribution and presentation to the annual meeting of the ABE Steering Committee;
10. reports in person to the Steering Committee;
11. provides updated material to the Ministry for the Articulation Handbook (transfer guide, committee lists, course changes, etc.).

### **B. Responsibilities**

A Working Committee Chairperson:

1. represents an institution;
2. orients new members of the Working Committee;
3. notifies Steering Committee members when colleges are not represented on Working Committees;
4. ensures there is a recorder for the Working Committee to summarize the results of the meetings, including items for action;
5. seeks the advice of the System Liaison Person, BCCAT, or the Ministry as and when appropriate, and invites such non-voting representatives to a meeting when necessary;
6. keeps updated course outlines at all levels for each college;
7. ensures the Working Committee stays on task.

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## List of Working Committees

Currently, there are seven working committees. They are:

1. Computer Studies
2. Education and Career Planning
3. English
4. Fundamental Level
5. Mathematics
6. Science
7. Social Science

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## Articulation Task Checklist

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The following checklist is provided to facilitate effective ABE articulation within and between post-secondary education institutions.

### 1. Within the ABE Division

Within the ABE division or department in the institution, there should be a plan for general information sessions, including:

regular subject area meetings, particularly after representatives return from Working Committee meetings;  
prompt and efficient distribution of reports from the Working Committee and Steering Committee minutes and reports;  
change of terminology on certificates, transcripts, calendars, application forms, and other documents;  
development of a new ABE brochure to use in orientation meetings internally and externally;  
submission of course, program, or procedural changes to the respective college committees, i.e. Program Advisory Committee, Standards and Admissions Committee, etc.

### 2. Regarding Students

Provide orientation for:

ABE students already enrolled in ABE;  
potential ABE students currently enrolled in other programs.

### 3. Within the Rest of the Institution

Provide information on an on-going basis to:

Coordinators or heads of other departments;  
Dean or Vice-president of Instruction;  
Counsellors/Advisors;  
Registrar/Admissions;  
Financial Aid Officer.

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#### **4. Planning and Tracking for the BCAGD**

Appropriate departments of the institution should plan to:

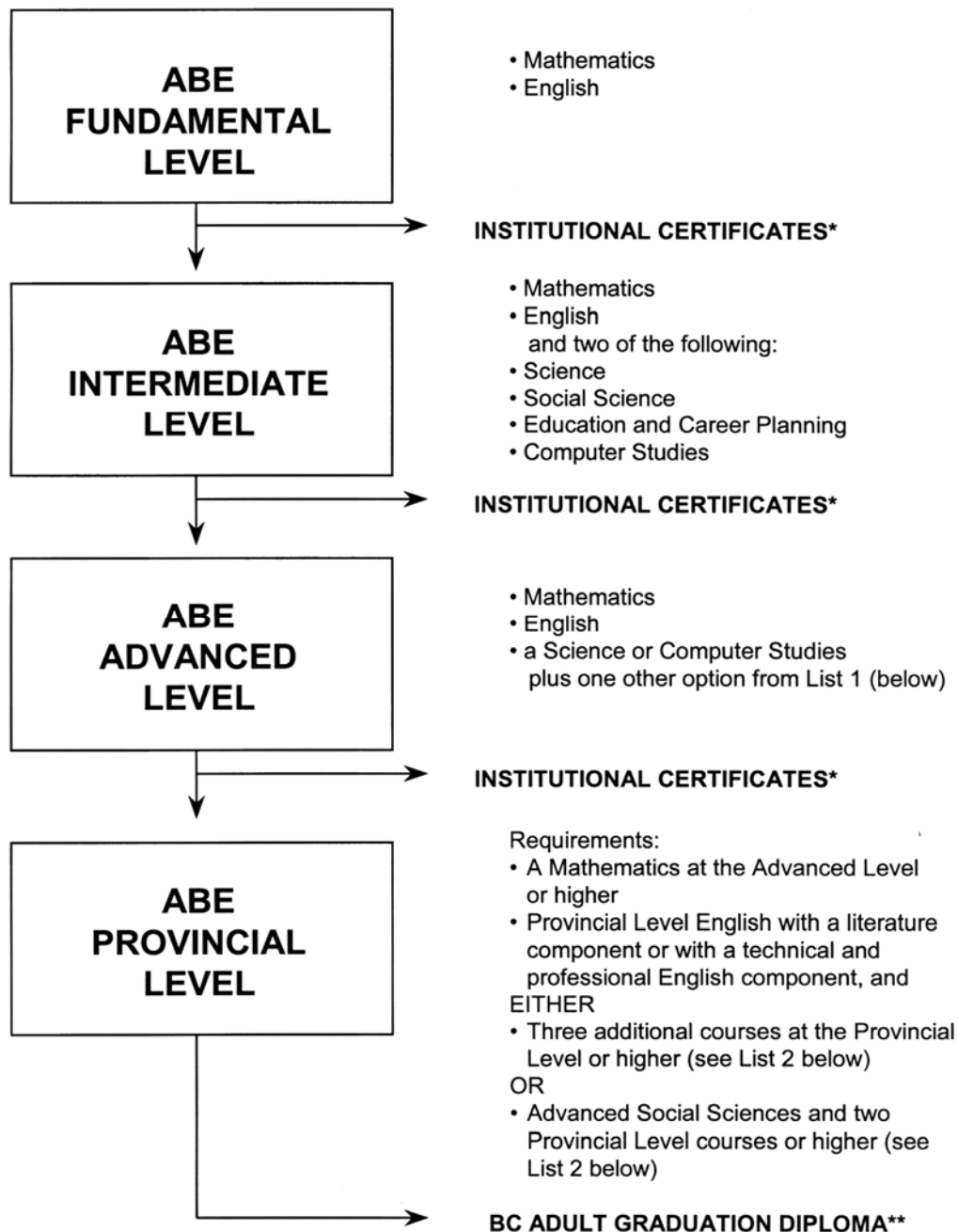
- identify a list of required and elective courses at this level;
- establish a procedure for dealing with electives;
- ensure that students are well-advised or counseled in their course selection;
- establish a procedure for applying for the Diploma (an application form, college transfer credit policy, application of 100 or higher level courses);
- approve student applications (coordinator, committee, registrar);
- establish a procedure for tracking diploma recipients.

#### **5. Community**

Provide information on an on-going basis to:

- Ministry of Human Resources offices;
- school districts;
- aboriginal band administration officers;
- other funding agencies.

# ABE PROGRAM FRAMEWORK



**List 1.** Options may be chosen from social sciences, another science, trades training at the occupational level, a language, accounting, education and career planning, etc., at the advanced level or higher.

**List 2:** Courses may be chosen from academic subjects at the Provincial level or higher in the areas of science, languages, humanities, social sciences, mathematics, and computer science or studies. Courses for credit may also be chosen from other subjects at the Provincial level or higher such as education and career planning, trades training at the specialty level, business administration, visual, graphic and performing arts. (Specific lists of options will be available at individual colleges & institutions.)

\* Each certificate and diploma is independent and not prerequisite for another.

\*\* Effective Sept. 1, 2000, the ABE Provincial Diploma was no longer granted. The new BC Adult Graduation Diploma ("The Adult Dogwood") is effective Sept. 1, 1999. See the next pages for more information.

# THE BC ADULT GRADUATION DIPLOMA: “The Adult Dogwood”

This common credential was introduced in September 1999. To be eligible to graduate on this program, adult students (19 years of age or over) must earn at least 20 credits in the secondary system or five courses in the post-secondary system. Courses and credits can be counted from either or both of the following areas:

BC POST-SECONDARY SYSTEM Qualifying Courses		BC SECONDARY SCHOOL SYSTEM Qualifying Courses	
A Provincial Level English or higher	OR	A Language Arts 12	4 credits
An Advanced or Provincial Level or higher Mathematics*	OR	A Mathematics 11 or 12	4 credits
Three additional courses at the Provincial Level or higher	OR	Three Grade 12 Ministry-authorized Courses (4 credits each)	12 credits
or		or Social Studies 11 (4 credits) and two Grade 12 Ministry-authorized Courses (4 credits each)	12 credits
Advanced Social Sciences and two Provincial level courses or higher			12 credits
<b>Total: 5 courses</b>		<b>Total: 20 credits</b>	

\* A student is able to take and obtain credit towards the BCAGD for both Advanced level and Provincial level (or higher) Mathematics. In the latter case, Mathematics would be one of the electives. Notes:

To be eligible for the BC Adult Graduation Diploma, a person must be 19 years or older. An eighteen year-old who has been out of school for at least a year may be admitted to an adult program with approval from the enrolling institution.

Three courses must be completed after enrolling in an adult program. Prior Learning Assessment may be used to meet any of the requirements for the BC Adult Graduation Diploma. Prior Learning Assessment involves a variety of techniques including equivalency reviews, challenge processes, in-depth interviews, etc.

In the secondary school system Provincial Exams are optional for students on an adult program. If the student chooses not to write a provincial exam, the grade will be reported with a “Q” code. It should be noted that some post-secondary institutions might not accept examinable courses for admission purposes unless the secondary system provincial exam has been written.

Any 4-credit course that is authorized by the Ministry of Education, or the Ministry of Advanced Education as requirements for graduation may be used towards the BCAGD.

For Ministry of Education information see the following section: “BC Adult Graduation Diploma: Questions and Answers.”

Accounting 11 or a college course equivalent to Accounting 11 can be used for the mathematics 11 credit for the BCAGD.

## The BC Adult Graduation Diploma: Questions and Answers

### What is the name of the new adult credential?

The official name of the new credential is the British Columbia Adult Graduation Diploma, but it is also known informally as the “Adult Dogwood.”

### What does the BC Adult Graduation Diploma replace?

The BC Adult Graduation Diploma replaces the former Adult Dogwood granted through the Ministry of Education (MEd) and the former ABE Provincial Diploma granted through the Ministry of Advanced Education (AVED).

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### **What about the regular Dogwood Diploma?**

The regular Dogwood Diploma is not affected by these changes. Adults may choose to do the regular Dogwood Diploma through the MEd. All articulated post-secondary ABE courses can be used for credit towards either the regular or Adult Dogwood.

### **What about the GED?**

The GED (General Educational Development) certificate is not affected by these changes. The GED certificate is not the same as a dogwood diploma.

### **When was the new BC Adult Graduation Diploma implemented?**

The new diploma was implemented as of September 1, 1999.

However, there was a transition period between September 1, 1999 and August 31, 2000 in which the ABE Provincial Diploma was also granted through the post-secondary institutions and AVED.

As of September 1, 2000 the ABE Provincial Diploma was no longer granted.

### **Who will issue the BC Adult Graduation Diploma?**

Post-secondary institutions will request the diplomas from AVED (at 250-356-8382) and issue them from the registrar's office. The new diploma is a joint AVED/MEd document signed by both ministers. Students may take their post-secondary course(s) back to the school district and apply for their diploma through the school district and MEd.

### **Who will issue the transcripts for the diploma?**

The institution issuing the diploma identifies which courses have been used to qualify for the diploma, both internal and transfer courses. Students combining courses from the two systems for the diploma will need to include all relevant transcripts in situations where they need to verify their courses and grades.

### **Does a student have to take at least 3 of the courses used towards the Adult Dogwood as an adult?**

Yes, or a student may use Prior Learning Assessment (where available) as an adult to get credit for at least 3 courses used towards the diploma.

### **What if a student is only missing one or two courses from their high school graduation?**

This student could take the missing course(s) at the college or school district and take them back to the high school towards the regular Dogwood Diploma.

### **Does a student have to take a minimum number of courses used towards the Adult Dogwood from the institution granting the Adult Dogwood?**

Yes, at least one course from the institution granting the diploma. The other eligible courses may be brought from another institution or institutions.

### **Can a student use courses taken a long time ago for credit towards the Adult Dogwood?**

Yes, as long as s/he has completed three courses as an adult and they were Ministry-authorized courses at the time.

### **Will college ABE students be able to write MEd provincial exams?**

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No, not through a college.

If a student wishes to write a provincial exam the student must register for the provincially examinable course at a school district.

**What courses are eligible? Can Communications 12 be used as the Language Arts 12? Can Accounting 11 be used for the Mathematics 11?**

Any course that is Ministry-authorized by either MEd (4 credits) or AVED (see the handbook information below) as a requirement for graduation may be used towards the diploma.

Yes, Communications 12 and Accounting 11 are eligible for Language Arts 12 and Mathematics 11 respectively.

**Can Career Programs (CP) designated courses be counted for credit towards the BCAGD?**

The only Career Prep course allowed for graduation credit for the BCAGD is Work Experience 12 (CPWE12).

**Where can I find out more information about course requirements and graduation requirements?**

**Ministry of Advanced Education (AVED):**

This Articulation Handbook is the AVED authorized guide to ABE course information and graduation requirements. Eligible courses include any advanced Mathematics or higher, any provincial English or higher, and any provincial level courses or higher. Higher than provincial level courses may or may not be accepted for university transfer if they have also been used towards the BCAGD. Students using these need to check with the receiving department/institution.

**Ministry of Education:**

The main MEd website for the Adult Graduation Program is [http://www.bced.gov.bc.ca/adult\\_graduation/](http://www.bced.gov.bc.ca/adult_graduation/)

The graduation requirements are also included in the *Handbook of Procedures* (<http://www.bced.gov.bc.ca/exams/handbook/chapter3/adult.htm>).

The MEd has determined that all ABE courses from British Columbia's public post-secondary institutions will be recognized for credit toward completion of the BCAGD.

All four-credit grade 12 courses that are listed in Chapter 1 (ministry-authorized) and Chapter 2 (external courses) of *Course Information* book, plus Social Studies 11 can meet the BCAGD requirements. See: <http://www.bced.gov.bc.ca/graduation/courseinfo/>

Two credit courses cannot be used towards graduation in the adult program. The exception is CAPP 11 and 12, which, for adults only on the adult program, can now be combined as CAPP 12 and be used as a four-credit course towards graduation.

The books mentioned above can be ordered from the Data Management Branch of MEd by fax at 250-952-6579 or downloaded from the Internet.



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## **RECOGNITION of the BC ADULT GRADUATION DIPLOMA**

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The British Columbia Adult Graduation Diploma (BCAGD) is recognized by colleges, institutes and universities in the British Columbia public post-secondary system. Entries below are taken from recent calendars.

### **British Columbia Institute of Technology**

2006-2007 Academic Requirements for Admission

The British Columbia Adult Graduation Diploma is considered equivalent to high school graduation. Check with Student Information and Enrolment Services to ensure that courses taken through the BCAGD are acceptable for admission to specific BCIT programs.

### **Simon Fraser University**

2006-2007 Calendar entry:

BC Adult Graduation Diploma

This credential is available to adults who take courses to complete graduation through a secondary school, adult education centre or a community college.

Applicants who have completed the diploma and who are at least 19 years of age may be admitted if they have completed:

four courses (16 credits) at grade 11 or advanced level to include English, mathematics, social studies or First Nations 12, an experimental or laboratory science; a language other than English is not required.

four courses (16 credits) at the grade 12 or provincial level to include English and three additional subjects selected from: biology, mathematics, chemistry, English literature, languages, statistics, geography, history, physics

All four grade 12 or provincial level subjects must be graded: a minimum average of C+ or 67% is required, based on the Ministry of Education grading scale. Entry requirements to business administration, computing science, engineering science, kinesiology, TechOne, BA Health Sciences, and the Faculty of Science parallel those for BC secondary school graduates.

### **University of British Columbia**

2006-2007 Calendar entry:

See: <http://www.students.ubc.ca/welcome/admission.cfm?page=abe>

### **University of Northern British Columbia**

2006-2007 Calendar entry:

British Columbia Adult Graduation Diploma

Applicants must be at least 19 years of age, and have successfully completed the BC Adult Graduation Diploma and the appropriate entrance requirements for Degree Group at the provincial or Grade 12 level with an overall average of 65% or better. Applicants in this category are not required to complete a fifth grade 12 course as noted in the Admissions Requirement by Degree Group Table.

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## **University of Victoria**

2006-2007 Calendar entry:

### **BC Adult Graduation Diploma**

Applicants with a BC Adult Graduation Diploma (the Adult Dogwood) may apply for admission if the following minimum requirements are met:

1. The applicant is at least 19 years of age.
2. Successful completion of English, Mathematics (academic), a laboratory Science, and Social Studies 11 or equivalent at the advanced or grade 11 level. Courses done through the secondary system must each be worth 4 credits.
3. Successful completion of English plus three approved academic subjects at the grade 12 level. Courses done through the secondary system must each be worth 4 credits, and provincial examinations must be written if offered in the subject taken. All courses presented for admission must be graded. A minimum average of 67% is required for consideration.

All applicants must have the appropriate prerequisites for the program to which they have applied. Admission requirements for the Faculty of Engineering, the Faculty of Science and the Health Information Science program parallel those for BC secondary school graduates.

## **Trinity Western University**

2006-2007 Calendar entry:

### **Adult Basic Education provincial diploma (ABE)**

Applicants who have completed the Adult Basic Education diploma should be at least 19 years old and have completed the diploma with four provincial level academic courses, one of which must be English. A minimum average of C+ (67 per cent) is expected in these courses.

# **TRANSFER GUIDES**

## **Computer Studies Transfer Guide**

<b>INSTITUTION:</b>	<b>FUNDAMENTAL</b>	<b>INTERMEDIATE</b>	<b>ADVANCED</b>	<b>PROVINCIAL</b>
British Columbia Institute of Technology				
Camosun College	COMP 030	COMP 040	COMP 060	COMP 080
Capilano College	BCMP 021	BCMP 031	BCMP 041	BCMP 052 (prog) BCMP 051 (app)
College of New Caledonia	COMP 020	COMP 030	COMP 045	
College of the Rockies			COMP 080	COMP 090 (app)
Douglas College				
Kwantlen University College				
Langara College				
Malaspina University-College			COST 047	COST 067 (app)
Nicola Valley Institute of Tech.		COMP 040	COMP 050	
North Island College	CPS 025	BIP 090		
Northern Lights College	CPST 020	CPST 030	CPST 040	CPST 050 (app)
Northwest Community College	CPST 20	CPST 030	CPST 040	CPST 050 (app)
Okanagan College		COST 070	COST 011	COSC 012 (prog) COST 012 (app)
Selkirk College	CPST 02	CPST 10	CPST 50	CPST 51 (app)
Thompson Rivers University		COMP 040	COMP 050	COMP 060 (prog) COMP 065 (app)
Thompson Rivers University – Open Learning				
University College of the Fraser Valley	COMP 061	COMP 071	CIS 100	
Vancouver Community College			CST 063 COKB 062	DTPR 083 or DTPR 084 and WDPR 082 or WDPR 093 *
Native Education Centre		CST 041 & 051	CST 061 & 071	ST 081 & 091
Yukon College				

(app) = Applied Computer Studies at the Provincial Level

(prog) = Programming (Computer Science) at the Provincial level.

## Education & Career Planning Transfer Guide

<b>INSTITUTION:</b>	<b>FUNDAMENTAL</b>	<b>INTERMEDIATE</b>	<b>ADVANCED</b>	<b>PROVINCIAL</b>
Camosun College		BEST 040	BEST 040	BEST 040
Capilano College	EDCP 020*	EDCP 030*	EDCP 040*	
College of New Caledonia			EDCP 045	
College of the Rockies		EDCP 070*	EDCP 080*	EDCP 090*
Douglas College				
Institute of Indigenous Government – All Nations Institute				EDCP 1200
Kwantlen University College				
Langara College				
Malaspina University-College		EDCP 030*	EDCP 047*	EDCP 067*
Nicola Valley Institute of Tech.			CRLS 050	CRLS 060
North Island College		CEP 030 CEP 031		
Northern Lights College		BEST 031	BEST 041	EDCP 050 BEST 051
Northwest Community College	EDCP 020	EDCP 030		EDCP 050
Okanagan College		EDCP 71, 72, 73, 74 & 75*	EDCP 81, 82, 83, 84 & 85*	
Educacentre		APDC 010*	APDC 020*	APDC 030*
Selkirk College	EDCP 02*	EDCP 49*	EDCP 50*	EDCP 51*
Thompson Rivers University		EDCP 040	STSS 050	
Thompson Rivers University – Open Learning		EDCP 010*	EDCP 020	EDCP 030*
Tl'azt'en Nation Prince George Native Friendship Centre			EDCP 024	
		PGEC 010	PGEC 020	
University College of the Fraser Valley	EDCP 064	EDCP 074		
Vancouver Community College		EAW 041 & 051 BEST 041 & 051	EAW 061 & 071 BEST 061 & 071	EAW 081 & 091 BEST 081 & 091
Native Education Centre		EDCP 041 & 051		EDCP 081 & 091*
Yukon College				

Course levels are differentiated by the level of language and the requirements of the assignments. Thus, the Provincial level will require a higher level of language ability and the assignments will be more demanding than the Intermediate level.

## English Transfer Guide

INSTITUTION:	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	ENGLISH 032 ENGLISH 033	ABEN 050	ABEN 080	ABEN 080 ENG 082 & ENG 084 or 088 FNS 092/094 Native Literature
Capilano College	BENG 011 BENG 021*	BENG 031	BENG 040 or BENG 041	BENG 052 (L)
College of New Caledonia Prince George Native Friendship Centre	ENG 010 ENG 020*	ENG 030	ENG 045	ENG 050
			ATEN 045	
College of the Rockies	ENG 060*	ENGL 070	ENGL 080	ENGL 090 (L) ENGL 091 (T) ELT 089 (L) Essential English (E)
Douglas College	DVST 0100, DVST 0155, DVST 0245, DVST 0255* or DVST 0250* & 0260*	DVST 0350 & 0360 DVST 0355	DVST 0455	
Institute of Indigenous Government – All Nation's Institute				ENGL 1200 (L)
Kwantlen University College	ABEE 0050/ PSPE 1050 ABEE 0060/PSPE 1060	ABEE 0070/PSPE 1070	ABEE 0081/ PSPE 1081	ABEE 0091/ PSPE 1091 ABEE 0097/PSPE 1097
Malaspina University- College	ENGL 010 ENGL 025*	ENG 037 (prerequisite: completion of ENGL 020, 025 assessment)	ENG 047	ENG 067
Nicola Valley Institute of Tech.		ENG 40	ENG 50	ENG 60
North Island College	ENG 010  ENG 027*	ENG 032 & ENG 033 & ENG 034 ENG 039	ENG 052	ENG 060 (L) or ENG 098 ESL090
Northern Lights College	ENGL 020*	ENGL 030	ENG 040	ENG 050 (L) or ENG 051 (T)
Northwest Community College	ENG 020*	ENG 030 First Nations 030	ENG 040 or ENG 045	ENG 050 (L) or ENG 055 (T) ENG 056
Okanagan College	ENG 50 or ENG 51 & 52 ENG 60* or ENG 61 & 62*	ENG 70 or ENG 71 & 72	COMP 011 or ENG 80 or ENG 81 & 82 or ENG 011	ENG 012 (L) or ENG LIT 012 or REAC 062 & WRIT 061 (L)
Selkirk College	LASK 01 & LASK 02 & LASK 03* R&SS001 & R&SS002 & R&SS003*	ENG 10	ENG 50	ENG 51 (L) or ENG 55 (T)
University of BC				FN ENGL 012
Thompson Rivers University	ENGL 030*	ENGL 040	ENGL 050	ENGL 060 (L)
Thompson Rivers University – Open Learning Tl'azt'en Nation Prince George Native Friendship Centre	ENGL 002 & ENGL 003* or ENG 009*	ENGL 010, ENGL 012	ENGL 024, ENGL 020, ENGL 028	ENGL 030 or ENGL 034
		ENGL 014		
		PGEN 010	PGEN 020	PGEN 030

University College of the Fraser Valley	ENGL 051 ENGL 061*	ENGL 071	ENGL 081	ENGL 091
Vancouver Community College	ENG 031*	ENG 0751	ENG 0861 & 0871	LIT 083 & 093 Or ENG 098 & 099 (L) or ENG 0981 & 0991 (L) or TPE 093
Native Education Centre	ENG 021/31	First Nations ENG 041 & 051	First Nations ENG 061 & 071	ENG 081 & 091 (L) or ENG 083 & 093 (T)
Yukon College		ENG 030	ENG 050	ENG 060 (L)

\* = "exit" course for the Fundamental Level

L = Literature

T = Technical and Professional

## First Nations Range of Courses

INSTITUTION	EDUCATION & CAREER PLANNING				
	COMPUTER STUDIES	ENGLISH	SCIENCE	SOCIAL SCIENCES	
<b>INTERMEDIATE</b>					
Native Education Centre (VCC)	CST 041 & 051	EDCP 041 & 051 (VCC)	First Nations ENG 041 & 051 (VCC)	SC 051	
NVIT	COMP 040		ENG 40		
Northwest Community College			First Nations 030		
Prince George Native Friendship Centre		PGEC 010 (OLA)	PGEN 101 (OLA)		PGSS 010 (OLA)
Tl'azt'en Nation			ENG 014 (OLA)		
<b>ADVANCED</b>					
NVIT	COMP 050	CRLS 050	ENG 50	BIOL 050	INST 051 Nsyilxcen
Prince George Native Friendship Centre		PGEC 020 (OLA)	PGEN 020 (OLA), ATEN 045 (CNC)		
Tl'azt'en Nation		EDCP 024 (OLA)		FOSC 020 (OLA)	
Vancouver Community College					FNST I & II (061-071)
Native Education Centre (VCC)	CST 061 & 071		First Nations ENG 061 & 071 (OLA)	SC 061 & 071, BIOL 061 & 071, CHEM 061 & 071, PHYS 061 & 071	FNS 061 & 071 (VCC)
<b>PROVINCIAL</b>					
Camosun College			FNS 092/094 Native Literature		FNHE 112 First Nations Health and Education Issues
Institute of Indigenous Government – All Nations Institute					FNST 1200
Native Education Centre (VCC)	CST 081 & 091	EDCP 081 & 091 (VCC)	ENG 081 & 091 (L), or ENG 083 & 093 (T) (VCC)	BIOL 083 & 093, CHEM 083 & 093	FNST 081 & 091, CUL 081 & 091, SGV 081 & 091 (VCC), SOC 081 & 091
NVIT		CRLS 060	ENG 60		NAST 060 INST 061 Nsyilxcen
North Island College					FNS 065
Northern Lights College					FNST 051
Northwest Community College					FNS 050
Thompson Rivers University - Open Learning					FNST 030, FNST 040

Prince George Native Friendship Centre			PGEN 030 (OLA)		PGGE 030 (OLA)
Tl'azt'en Nation				FOSC 030 (OLA)	
Thompson Rivers University					Native Studies 060

NOTE: These courses are already articulated courses within the system but are presented in this template to show the range of offerings of ABE courses at aboriginal institutions as well as specific First Nations courses throughout the system. For Mathematics courses at NVIT and NEC see p. 20-21



## Fundamental Level Transfer Guide

\* = "exit" course for the Fundamental Level.

INSTITUTION:	EDUCATION & CAREER PLANNING			
	COMPUTER STUDIES		ENGLISH	MATH
Camosun College	COMP 030		ENG 032 ENG 033*	MATH 032 MATH 033 MATH 034*
Capilano College	BCMP 021	EDCP 020	BENG 011 BENG 021*	BMATH 011 BMATH 021*
College of New Caledonia	COMP 020		ENG 010 ENG 020*	MATH 015 MATH 020*
College of the Rockies			ENG 40 & 50 ENG 060*	MATH 40 & 50 MATH 060*
Douglas College			DVST 0100, DVST 0155, DVST 0245, DVST 0255* or DVST 0250* & 0260*	DVST 0100 DVST 0110 DVST 0115 DVST 0125 DVST 0210*
Kwantlen University College			ABEE 0050/ PSPE 1050 ABEE 0060*/ PSPE 1060*	ABEM 0063*/ PSPM 1063
Malaspina University-College			ENGL 010 ENGL 020 or ENGL 025*	MATH 010 (part I) MATH 020*(part II)
North Island College	CPS 025		ENG 010 Intermediate ENG 039 ENG 027*	MATH 023 MATH 024 MATH 025*
Northern Lights College	CPST 020*		ENGL 020*	MATH 20A MATH 20B MATH 20C*
Northwest Community College	CPST 020	EDCP 020	ENG 020*	MATH 0201/0202*
Okanagan College			ENG 50 or ENG 51 & 52 ENG 60* or ENG 61 & 62*	MATH 51 & 52 MATH 61 & 62*
Thompson Rivers University – Open Learning			ENGL 002 & ENGL 003* or ENGL 009*	MATH 010 (Adv. Fund. Refresher Math)*
Selkirk College	CPST 02*	EDCP 02*	LASK 001 LASK 002 LASK 003* R&SS 001 R&SS 002 R&SS 003*	MATH 001 MATH 002 MATH 003*
Thompson Rivers University			ENGL 030*	MATH 030*
University College of the Fraser Valley	COMP 061	EDCP 064	ENGL 051 & ENGL 061*	MATH 051 & MATH 061*
Vancouver Community College			ENG 031*	MATH 031*

Native Education Centre				MATH 021/031
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## Mathematics Transfer Guide

INSTITUTION:	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	MATH 032 & 033 MATH 034*	MATH 052 & 053⇒ (A)	MATH 072 & 073⇒ (A)	MATH 092 & 093⇒
Capilano College	BMTH 011 BMTH 021*	BMTH 033 & 034 (A)	BMTH 041 (bus/tec) or BMTH 043 & 044 (A) ⇒ or MATH 091 & MATH 096⇒	BMTH 053 & 054 or MATH 105
College of New Caledonia	MATH 015 MATH 020*	MATH 030 (A) or	MATH 044 (dev) or MATH 045 (A)	MATH 050
College of the Rockies	MATH 040 & 050 MATH 060*	MATH 070	MATH 080 (A) or MATH 081(bus/tec) or MATH 082 (dev)	MATH 090 or MATH 093
Douglas College	DVST 0110 DVST 0210*	DVST 0310 (A)	DVST 0410 (dev) or DVST 0411(A)	DVST 0412
Institute of Indigenous Government – All Nations Institute			MATH 1100 (dev)	
Kwantlen University College	ABEM 0008*/ MATP 1008*	ABEM 0010 (A) MATP 1010 (A)	ABEM 0011 (A)/ MATP 1011 (A)	MATH 1112 or MATH 1111 & 1113 ⇒
Langara College			MATH 1150 (dev)	MATH 1152
Malaspina University- College	MATH 010 (part I) MATH 020* (part II)	MATH 030	MATH 047 (A) or MATH 040 (bus) or MATH 044 (tec) or MATH 041 (dev) or MATH 045 & 046 (A)⇒	MATH 067 or MATH 151 & 152⇒
Nicola Valley Institute of Tech.		MATH 040 (dev) & MATH 041(A) ⇒	MATH 050 (dev) & MATH 051 (A) ⇒	MATH 060 & 061⇒
North Island College	MATH 023 MATH 024 MATH 025*	MATH 033 & 034 (A) ⇒	MATH 053 (A) or MATH 046 (dev)	MATH 066 & 067⇒
Northern Lights College	MATH 020*	MATH 030 (A) or MATH 031	MATH 040(A) MATH 044 (bus/tec)	MATH 050
Northwest Community College	MATH 0201 & 0202*	MATH 0301 & 0302 (A) or MATH 031 (bus) or MATH 032 (tec)	MATH 0401 & 0402 (A) or MATH 045 (dev) MATH 046 (bus/tec)	MATH 0501 & 0502 MATH 053 (calc)
Okanagan College	MATH 51 & 52 MATH 61 & 62*	MATH 71 & 72 (A) ⇒ or MATH 71 & 73⇒	MATH 011 (A) or MATH 84 & 85⇒ (dev) or ALGE 011 (dev)	MATH 012 or MATH 120
Selkirk College	MATH 001 MATH 002 MATH 003*	MATH 10 or MATH 49 (A)	MATH 50 (A) MATH 23 (bus/tec)	MATH 51 (formerly MATH 110)
Thompson Rivers University	MATH 030*	MATH 040	MATH 050 (dev) or MATH 051 (A)	MATH 060 & 061⇒
Thompson Rivers University – Open Learning	MATH 010 *	MATH 014 (A)	MATH 024(A)	MATH 034

## Mathematics Transfer Guide (Cont'd)

INSTITUTION:	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
University College of the Fraser Valley	MATH 051 MATH 061*	MATH 072 (A)	MATH 084 (dev) or MATH 085 (A)	MATH 094 & 95⇒ or MATH 110
Vancouver Community College	MATH 031*	MATH 0750 & 0751 (A) ⇒	MATH 0861 & 0871(A) ⇒ or MATH 0882 (bus/tec) or MATH 063	MATH 0983 & 0993⇒ MATH 0996 & 0997 (calc) ⇒
Native Education Centre		MATH 050 & 051 (A) ⇒	MATH 061 & 071(A) ⇒ or MATH 062 & 072 (bus) ⇒ or MATH 061 & 071 (dev) ⇒	MATH 083 & 093⇒
Yukon College		MATH 030	MATH 050 (A)	MATH 060 MATH 070 (calc)

\* = "exit" course for the Fundamental Level.

(A) = Algebra option;

(bus) = business/consumer math;

(tec) = technical math;

(dev) = developmental

(calc) = introduction to calculus

Note: Where courses are joined with an ampersand (&), a course marked with "⇒" satisfies level completion.

## General & Applied Science Transfer Guide

<b>INSTITUTION:</b>	<b>INTERMEDIATE</b>	<b>ADVANCED</b>	<b>PROVINCIAL</b>
Camosun College	ABSCI INTER		
Capilano College	BSCI 032 or BSCI 033 & BSCI 034	BESC 041	
College of New Caledonia	SC 030		
College of the Rockies	SCIE 070		
Douglas College	DVST 370	DVST 470	
Kwantlen University College	ABES 0010 or SCIP1010		
Langara College			
Malaspina University-College	SC 030	SC 040 or SC 044 or SC 047	
Nicola Valley Institute of Tech.		BIOL 050	
North Island College	SCI 031		
Northern Lights College	SCI 030	SCIE 040	
Northwest Community College	SCI 030		
Okanagan College	SC 70	SC 80 or Science and Tech 011	
Selkirk College	SCIE 10		
Thompson Rivers University	SINC 040	SINC 050	
Thompson Rivers University – Open Learning	SCIE 010	EASC 024	
Tl'azt'en Nation		FOSC 020 (OLA)	FOSC 030
University College of the Fraser Valley	BIOL 071 and CHEM 071		
Vancouver Community College	SC 051	SC 061 & 071	
Native Education Centre	SC 051	SC 061 & 071	
Yukon College			

## Biology Transfer Guide

<b>INSTITUTION:</b>	<b>ADVANCED</b>	<b>Provincial Ecology</b>	<b>PROVINCIAL Human Biology</b>
Camosun College	BIOL 060		BIOL 080
Capilano College	BBIO 041 or BBIO 043 & 044		BBIO 042 or BBIO 053 & 054
College of New Caledonia	BIO 045		BIO 050
College of the Rockies	BIO 080		BIO 090
Douglas College	DVST 472 & 473		
Kwantlen University College	ABEB 0011 or BIOP 1011		ABEB 0012 or BIOP 1012
Langara College			
Malaspina University-College	BIO 047		BIO 067
Nicola Valley Institute of Tech.	BIO 050		BIOL 060
North Island College	BIO 051		BIO 060
Northern Lights College	BIO 040		BIO 050
Northwest Community College	BIOL 040 or BIOL 0401 & 0402		BIOL 050 or BIOL 0501 & 0502
Okanagan College	BIO 011		BIO 012
Selkirk College	BIOL 50		BIOL 51
Thompson Rivers University	BIO 050	BIO 062	BIO 060
Thompson Rivers University – Open Learning	BISC 023		BISC 030
University College of the Fraser Valley	BIO 083 BIO 083A		BIO 093
Vancouver Community College	BIO 0861 (Biology 11-Part 1)  BIO 0871 (Biology 11-Part 2)	BIO 0996 (Biology 12-Human Ecology)	BIO 0983 (Biology 12-Part 1)  BIO 0993 (Biology 12-Part 2)  BIO 1094 (Biology 12 for health care)
Native Education Centre	BIOL 061 & 071		BIOL 083 & 093
Yukon College	BIOL 050		BIOL 060

## Chemistry Transfer Guide

INSTITUTION:	ADVANCED	PROVINCIAL
BC Institute of Technology	CHEM 0001	
Camosun College	CHEM 060	CHEM 110
Capilano College	BCHM 041 or BCHM 043 & 044	BCHM 042 or BCHM 053 & 054
College of New Caledonia	CHE 045	CHE 050
College of the Rockies	CHEM 080	CHEM 090
Douglas College		
Kwantlen University College	CHEM 0094	CHEM 1105
Langara College		
Malaspina University-College	CHEM 047	CHEM 067
Nicola Valley Institute of Tech.	CHEM 050	CHEM 060
North Island College	CHE 051	CHE 060
Northern Lights College	CHEM 040	CHE 050
Northwest Community College	CHEM 040 or CHEM 0401 & 0402	CHE 050
Okanagan College	CHE 011	CHE 012
Selkirk College	CHEM 50	CHEM 51
Thompson Rivers University	CHEM 50	CHEM 60
Thompson Rivers University - Open Learning	CHEM 024	
University College of the Fraser Valley	CHE 083	CHE 093
Vancouver Community College	CHEM 0861 (Chemistry 11-Part 1)	CHEM 0983 (Chemistry 12-Part 1)
	CHEM 0871 (Chemistry 11-Part 2)	CHEM 0993 (Chemistry 12-Part 2)
Native Education Centre	CHEM 061 & 071	CHEM 083 & 093
Yukon College	CHEM 50	CHEM 60

## Physics Transfer Guide

INSTITUTION:	ADVANCED	PROVINCIAL
Camosun College	PHYS 060	
Capilano College	BPHY 041 or BPHY 043 & 044	BPHY 042 or BPHY 053 & 054
College of New Caledonia	PHYS 045	PHYS 050
College of the Rockies	PHYS 080	PHYS 090
Douglas College	DVST 476	
Kwantlen University College	ABEP 0011 or PHYP 1011	PHYS 1100
Langara College		
Malaspina University-College	PHYS 047	PHYS 067
Nicola Valley Institute of Tech.	PHYS 050	
North Island College	PHY 050	PHY 060
Northern Lights College	PHYS 040	PHYS 050
Northwest Community College	PHYS 040	PHYS 050
Okanagan College	PHYS 011	PHYS 012
Selkirk College	PHYS 050	PHYS 051
Thompson Rivers University	PHYS 050	PHYS 060
Thompson Rivers University – Open Learning	PHYS 024	PHYS 034
University College of the Fraser Valley	PHYS 083	PHYS 093
Vancouver Community College	PHYS 0861 (Physics 11–Part 1)	PHYS 0983 (Physics 12-Part 1)
	PHYS 0871 (Physics 11-Part 2)	PHYS 0993 (Physics 12-Part 2)
Native Education Centre	PHYS 061 & 071	
Yukon College	PHYS 050	PHYS 060



## Social Sciences Transfer Guide

<b>INSTITUTION:</b>	<b>INTERMEDIATE</b>	<b>ADVANCED</b>	<b>PROVINCIAL</b>
Camosun College			PSYC 080 FNHE 112 First Nations Health and Education Issues
Capilano College	BSOC 031	BSOC 041 BESC 041	BGEO 042 or BGEO 052, BHST 042 or BHST 052
College of New Caledonia	CNST 030		
College of the Rockies	SOST 070	SOST 080	HIST 090, GEOG 090, Social Psychology 090
Douglas College			
IIG – All Nation’s Institute			FNST 1200
Kwantlen University College			
Langara College			
Malaspina University-College	SOST 030	SOST 047	HIST 067, GEOG 067
Nicola Valley Institute of Tech.		INST 050 INST 051 Nsyilxcen	INST 060 INST 061 Nsyilxcen
North Island College	SOC 030	SOC 050	GEO 060, HIS 060, FNS 065
Northern Lights College	SOST 030	SOST 040	GEOG 050, HIST 050 LAW 050
Northwest Community College	SOSC 030	SS 040	GEOG 050, HIST 050, FNST 050
Okanagan College	SS 70	SS 011	EC 012, HIST 012, GEOG 012, LAW 012
Selkirk College	SOST 049 or SOST 10	SOST 050	HIST 051
Thompson Rivers University	SS 040	SOST 011 PSYCH 050	SOSC 060 or NAST 060 or BBUS 061
Thompson Rivers University - Open Learning	SOST 010	SOST 028, SOST 024	HIST 030, FNST 030, GEOG 030, FNST 040
Prince George Native Friendship Centre	PGSS 010		PGGE 030
University College of the Fraser Valley	SS 071 or SS 072	SS 082	SS 090 or Humanities 090
Vancouver Community College	SOC SC 051	ENG 098 & 099, FNST I & II (061-071)	EC 094 & 095 PSY 081 & 091 GEOG 094 plus 095 or 098 (2 for credit) HIST 095 plus 094 or 098 (2 for credit) LAW 082 & 092
Native Education Centre		FNS 061 & 071	FNS 081 & 091 CUL 081 & 091 SGV 081 & 091 SOC 081 & 091 PSY 081 & 091

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# **GENERIC TOPIC OUTLINES**

## **COMPUTER STUDIES**

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### **Computer Studies: Fundamental Level - Computer Skills**

#### **Goal Statement**

Computers are increasingly becoming a pervasive part of daily life in personal, work and educational situations. Computer skills are introduced at the fundamental level to help students gain the confidence to perform basic computer operations.

#### **Core Skills**

Students will be able to demonstrate the following skills:

##### **A. Keyboarding**

- use correct touch typing techniques and procedures for letters but not for top row numbers/symbols
- achieve an adjusted typing speed of 10 wpm

##### **B. Basic Knowledge of Computers**

- list the basic parts of a computer system (system unit, monitor, keyboard, mouse, floppy disk drive, hard disk drive and printer)
- demonstrate the ability to properly start and shut down a computer system
- demonstrate the ability to start and close a program
- describe a diskette and its care and limitations
- describe some common uses of computers in society
- use a mouse
- demonstrate the ability to operate a printer (power on, put on line/off line and load paper)

##### **C. Word Processing**

- create a new word processing document
- edit a document
- save a document to a disk
- print a document
- retrieve a document from a disk
- use tools such as a spell checker or thesaurus

##### **D. Electronic Communication**

- browse the Internet
- send and receive email

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### **Computer Studies: Intermediate Level - Computer Skills**

#### **Goal Statement**

Computers are increasingly becoming a part of daily life in personal, work and educational environments. The goal of an Intermediate Level computer course is to introduce adult learners to the use of the computer as a tool so that they will become more self-confident and therefore able to function more efficiently with a computer.

#### **Core Skills**

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Students will be able to demonstrate the following learning outcomes:

**A. Keyboarding**

- use correct touch typing techniques and procedures
- achieve an adjusted typing speed of 20 wpm

**B. Introduction to Computers**

- list the basic parts of a computer system (system unit, monitor, keyboard, mouse, floppy disk drive, hard disk drive and printer)
- demonstrate the ability to properly start and shut down a computer system
- demonstrate the ability to launch and terminate an application program
- describe a diskette and its care
- develop an appreciation of the evolution of computer technology and the range of applications in society
- describe commonly used computer terminology and acronyms
- describe the difference between hardware and software
- demonstrate the use of the features of a mouse including left click, right click and scroll
- demonstrate the ability to operate a printer (power on, put on line/off line and load paper)

**C. Operating System**

- describe the basic operations of an Operating System (launching applications programs and managing system resources)
- demonstrate the ability to correctly name and locate files and folders
- demonstrate the ability to perform basic file operations using the operating system (copy, move, erase and rename)

**D. Word Processing**

- create a new word processing document
- edit a document, including cutting and pasting text
- print a document
- save a document to a specified location
- retrieve a document from a disk or a specified location
- use tools such as a spell checker or thesaurus
- format a page using basic page layout properties (margins, justification, boldfacing and line spacing)
- demonstrate the ability to use help features and tutorials
- create headers, footers and page numbering
- manipulate margins
- create tables, columns, page and section breaks

**E. Electronic Communications**

- browse and search the Internet
- send and receive email with file attachments

**F. Options**

- importing information from other sources such as graphs, graphics, spreadsheets, databases and the Internet
- perform basic spreadsheet and database operations
- prepare and deliver a presentation using a computer
- demonstrate the ability to participate in an online course

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# **Computer Studies: Advanced Level**

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## **Goal Statement**

The goals of Computer Studies at the Advanced Level are:

- to provide students with a survey of the major applications of computers
- to develop an understanding of computers and concepts to aid the students' employment opportunities, personal productivity, and enjoyment;
- to enable the student to acquire skills to contribute to, and participate productively in society.

An Integrated Resource Package, containing learning outcomes, suggested instructional and assessment strategies and suggested resources, has been developed for use in Advanced Level Computer Studies.

## **Learning Outcomes**

### **1. Hardware**

#### **A. Computer System Overview**

It is expected that learners will be able to:

- identify, name and describe basic components of a computer system:
  - system unit
  - memory and secondary storage devices
  - input and output devices

#### **B. System Unit Components**

It is expected that learners will be able to:

- identify, name and describe basic components of a computer system unit:
  - motherboard
  - expansion slots and buses
  - Central Processing Unit (CPU)
  - memory (RAM)
  - peripheral connections (parallel, serial, SCSI, USB, firewire)

#### **C. Memory and Secondary Storage**

It is expected that learners will be able to:

- identify, name and describe Secondary Storage Devices, including:
  - floppy disks
  - hard disks (fixed and removable)
  - optical and magneto-optical storage devices (e.g. CD-ROM, DVD)
  - tape drives
- recognize and use capacity descriptors (KB, MB, GB, TB)
- describe proper floppy disk handling procedures and care
- distinguish between and describe the function of RAM, ROM, BIOS, CMOS, virtual memory and cache.

#### **D. Input and Output**

It is expected that learners will be able to:

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- identify, name, describe, and distinguish among input and output devices (and associated software):
    - keyboard, pointing devices, scanners
    - video adapters and displays (CRT, LCD)
    - printers (various types)
    - voice
    - describe how various input and output devices can be used to assist people with disabilities
    - digital camera

## **2. Operating a Computer**

It is expected that learners will be able to:

- distinguish between System Software, Utility Software and Application Software and describe the purpose of an operating system
- differentiate among various commonly used operating systems
- employ operating system(s) to perform basic operations of disk and file management.
  - state the rules and conventions of file naming
  - employ wildcard characters in file management
  - organize files on storage devices and designate drives, folders and files
  - perform management functions to locate, list, display properties of, copy, rename, move, (un)delete folders and files
  - describe (sectors, tracks, index) and perform disc formatting
  - recognize a variety of common program and data file types and their associated extensions
- describe the problem of computer viruses and spyware, and methods to detect and remove them
- demonstrate care, maintenance, and protection of computer equipment
- demonstrate the ability to back up data to a CD or other media

## **3. Computers in Society**

It is expected that learners will be able to:

- identify the effect of computers on their everyday lives (e.g. databases-subscription lists, ATMs, the Internet, computer record systems, income tax)
- give examples of how computers are affecting career opportunities
- trace the history of computer technology and identify current trends
- state the purchasing considerations from the perspective of an informed consumer (e.g. warranty, service, licensing, needs assessment, market trends)
- provide examples of ethical issues involving computers in society, such as protection of privacy and copyright

## **4. Word Processing**

It is expected that learners will be able to perform basic operations of word processing:

- create a word processing document and save it to a specified disk and directory
- select any amount of text and format the character attributes
- format the indentation, the alignment, and the spacing of lines and paragraphs
- identify non-printing characters (space, tab, new line, new paragraph) as displayed on the screen
- move, copy, and delete text
- insert a page break and section break into a document
- insert, format and manipulate a table
- use bulleted and numbered lists
- use footnotes/endnotes

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- apply lines, shading and colour to a document
  - use the find and the replace functions
  - use the spell checker/thesaurus
  - insert a graphic into a document
  - set page margins
  - use headers and footers (including page numbering, filename, and date codes) with multiple sections
  - preview and print a document
  - recognize different document output devices (printers and faxes)
  - recognize that different file formats originating from different word processors and versions may be incompatible, requiring file conversion routines
  - save as a web document

## 5. Spreadsheets

It is expected that learners will be able to:

- perform basic spreadsheet operations:
- enter and format data (numbers, text, data series)
- create simple formulas (using basic operators and functions)
- copy or move data and/or formulas, utilizing absolute and relative cell addresses and ranges
- change cell characteristics (column widths, alignments, fonts, etc.)
- control page layout such as orientation, scaling, grid lines
- use a spreadsheet to predict outcomes based on specific parameters (e.g. mortgages, investments, financial forecasting and planning)
- create several kinds of charts based on spreadsheet data
- save as a web document

## 6. Internet

It is expected that learners will be able to:

- describe the basic structure and functioning of the Internet and define current terminology such as URL, ISP, WWW, and backbone
- describe the various options for computer connectivity (e.g. cable modems, ISDN, XDSL, routers, wireless)
- send and receive e-mail (including attachments) using proper etiquette
- use a web browser to access and navigate through a web site
- use search engines to locate and bookmark information
- save text and graphical information from a web site
- describe how business is conducted on the Internet, including security issues
- recognize security problems associated with Internet use (e.g. spyware, viruses, spam, firewall)

## 7. Graphics Applications

It is expected that learners will be able to:

- create and manipulate a graphic image (e.g. Paintbrush, Draw)
- differentiate between various bit-mapped and vector-based graphic file formats (e.g. .BMP, .JPG and .WMG)

## 8. Integration of Applications

It is expected that learners will be able to:

- combine data/files from various applications (e.g. mail merge, importing spreadsheet data and charts into a document, inserting a graphic image)

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## Options

### 1. Databases

It is expected that learners will be able to:

- describe the structure of a database: records, fields, and key fields
- perform simple database procedures:
  - design a form
  - enter, edit and format data
  - examine, manipulate records in different views; delete and insert records; sort records in different ways
  - format, insert, move, hide and un-hide fields
  - design, create, and print a report consisting of selected fields
- search and query a database for information based on specified parameters

### 2. Computer Programming

It is expected that learners will be able to:

- create simple programs in a given programming language such as BASIC or Visual Basic
- describe the purpose of compilers and/or interpreters
- create and make use of computer designs or algorithms
- write basic input, processing and output instructions

### 3. Touch Typing

It is expected that learners will be able to:

- significantly increase their typing speed
- demonstrate proper keyboarding techniques

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## Computer Studies: Provincial Level - Computer Applications

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### Goal Statement

The goals for the Provincial Level Computing Studies are:

- to develop problem solving/critical thinking skills utilizing computer application software as a tool. Towards this end, project work will be emphasized.
- to build on computer software skills and outcomes as described by the learning outcomes of the advanced level computing studies.

### Learning Outcomes

Because of the wide and ever expanding nature of computing applications, it is both impossible and undesirable to include all outcomes in a single course. A computing studies course at the provincial level will consist of a minimum of two from the following categories:

#### 1. Information Technology

It is expected that the learner will be able to:

- identify/explain/demonstrate how communications hardware and software function
- send, receive and organize mail and file attachments

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- demonstrate proficient use of the Internet including:
    - understanding how the Internet was developed and how it functions
    - use of a WWW browser
    - search techniques using one or more search engines
    - downloading files
    - participation in one or more newsgroups
    - HTML (hypertext markup language)
    - demonstrate an awareness of ethical and security issues

## 2. Publishing/Presentation

Learning outcomes shall be applied to one or more of the following:

- A. advanced word processing
- B. desktop publishing
- C. World Wide Web (HTML) publishing
- D. multimedia presentation

It is expected that the learner will be able to:

- organize and present a variety of text, graphic and other data (e.g. animation and sound), following appropriate design and layout procedures
  - demonstrate the use of templates, “wizards” and other productivity tools
  - merge documents and integrate tables, charts and graphics
  - know the various file formats used for text, graphics, sound, animation and publication files
  - demonstrate the ability to change file formats where possible
  - create, modify and manipulate digital graphic images (e.g. scan, draw, paint)
  - retrieve a graphic/animation/sound file through using either CD-ROM or the Internet
  - apply, where appropriate, correct typographic principles involving font selection, point size, justification, kerning, bullets, headers and footers
  - generate links, cross references, footnotes, indexes and tables of contents where appropriate
- HTML Option:** learn and be able to apply Java Script to HTML documents.

## 3. Advanced Spreadsheets

It is expected that the learner will be able to:

- enter, format and edit data
- use and write formulas
- create and modify charts
- create reports
- manage and analyze data
- create macros or use a programming language to customize a spreadsheet
- design a spreadsheet to analyze, interpret and project outcomes in an applied situation

## 4. Database Management

It is expected that the learner will be able to:

- design and create flat file and relational databases
- maintain and modify the structure of existing databases
- correctly formulate queries
- create and edit forms
- create and edit reports
- be aware of various social and ethical issues involving databases

## 5. Networking



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The learner will be able to:

- state advantages and disadvantages of using networks
- describe different network configurations (printer network, LAN, WAN, etc.)
- describe and diagram different network topologies (point-to-point, star, bus, etc.)
- describe the advantages and disadvantages of different network data transmission media (twisted pair, coaxial cable, optical fibre, and wireless)
- list and describe common network operating systems and network protocols
- describe various server models, including file servers and client/server systems
- list Internet/intranet similarities and differences
- describe management issues, including traffic analysis and security

## 6. Programming\*

**\*A Note of Caution:** The Programming option must not be considered as equivalent to or as a replacement for the Computer Science course articulated at the provincial level.

This option introduces the learner to programming fundamentals. The learner will write programs in a high level language that demonstrate output only and input-process- output operations. While the emphasis of the Computer Science course is software engineering, this option focuses primarily on the elements of programming.

It is expected that the learner will be able to:

- test, debug and modify program code
- define data types and assign meaningful identifiers to constants and variables
- use input statements to access the keyboard and use output statements to display text and graphics
- use conditional expressions to alter program flow
- use iteration structures to create loops
- write simple procedures
- write programs to demonstrate mathematical processing and simple character and graphic manipulations

## 7. Graphics

It is expected that the learner will be able to:

- acquire images using a scanner
- operate a digital camera and/or camcorder
- describe important specifications of a digital camera, including megapixels, optical zoom and digital zoom
- transfer digital pictures to a computer
- demonstrate understanding of the resolution of a digital image
- demonstrate understanding of aspect ratio
- identify various graphic file formats and perform conversions from one type to another
- crop a digital picture
- resize a digital image
- rotate a digital image
- convert a colour to a grey scale image
- adjust brightness and contrast of a digital photograph
- apply a variety of filter effects to a digital photograph

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# Computer Science: Provincial Level

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## Goal Statement

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The goals for the provincial level Computer Science course are:

- to develop problem solving skills whereby the student is able to analyze a problem, devise an algorithm or process to solve the problem, use this process to write a computer implementation of the solution and to test the solution;
- to adequately prepare students for a career or program of studies where logical thought and structured design processes are required.

## Generic Topic Outline

### Core Topics

#### A. Software Engineering (Problem Analysis and Design of Solution)

Given a problem suitable for a computer programming solution, the student shall:

- analyze the problem so that it is clearly understood;
- identify the inputs, outputs and appropriate data structures;
- break down the solution of the problem into component modules;
- design the structure of each module, documenting it in structured English, using a method such as pseudo-code or top-down charts. It shall describe in detail all inputs, processes or algorithms used and format of outputs;
- design an appropriate user interface;
- produce computer source code as a software design implementation. A structured high-level language will be used. Differences between source code and machine code will be understood;
- test, debug and modify program code until error free;
- document the solution, both internally and externally.

#### B. Elements of a programming language

The student shall demonstrate knowledge of the following program elements through use of a high level programming language. Please note that any high level Programming Language (e.g. Java, Visual Basic, C++, Pascal or QBASIC) may be used.

- data types (including Integer, Real, Boolean, Character and String) and their representation as bits and bytes;
- meaningful identifier names for constants, variables, procedures (or subroutines) and programs;
- the process of breaking down a computer program into a series of subprograms directly corresponding to the modules identified in the software design. The subprograms shall be written as procedures, functions, subroutines and the like;
- the advantages and disadvantages of, and differences between global variables, local variables and parameters. The scope of variables and the occurrence of side effects shall be explained;
- input and output statements shall access the keyboard, printer, disk and disk files while output devices are the monitor, printer and disk files;
- arithmetic expressions using the addition (+), subtraction (-), multiplication (\*), and division (/ , DIV and MOD) operators as applied to real and/or integer operands. Includes order of operation (including use of parentheses) string and character manipulation and processing. Use of substrings, concatenation and other language-specific program features; built-in and programmer-defined functions and constants. Existence of the built-in PI constant;
- conditional expressions used to alter program flow. (e.g. If...Then...Else or case structures). Included in this is use of the relational operators (=, <, >, <=, >=, and <=) the logical operators (AND, OR, NOT) and Boolean variables (True/False) and nested conditional statements (e.g. If...Then...Else...If...Then)
- iteration structures (e.g. For...Do, While...Do and Repeat...Until). Definite (e.g. For...Do) vs. Indefinite (e.g. While...Do and Repeat...Until) loops. Nested loops. Avoidance of infinite loops;
- one-dimensional arrays.

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# **EDUCATION & CAREER PLANNING**

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## **Career Planning**

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### **Goal Statement**

The goal of Education and Career Planning is to enhance the life and employment readiness skills of adult learners. Students will be prepared to pursue occupational and educational goals in a changing and diverse world.

### **Generic Topic Outline**

Education and Career Planning involves the development of a broad range of foundation skills. These skills are appropriate for Fundamental, Intermediate, Advanced and Provincial levels. Of the nine skill areas listed, 1 and 2 are considered mandatory, as well as five of the remaining seven. All outcomes listed in the two mandatory skills areas must be met. While suggestions for specific topics are provided for each major skill area, it is recognized that the exact content of courses may vary.

### **Mandatory Skills**

#### **1. Communication Skills**

Students will:

- identify and practice active listening skills in a variety of situations
- demonstrate a knowledge of the range of effective speaking strategies
- extract, assess and exchange information using visual and electronic media
- recognize diverse cultural styles of communication
- identify and interpret non-verbal communication
- develop and apply effective writing processes in a variety of contexts
- develop self-awareness of personal qualities, values, interests and abilities
- apply critical thinking skills

#### **2. Education and Career Exploration Skills**

Students will:

- analyze current labour market and future trends
- investigate and develop a personal network
- undertake occupational and educational research
- identify available funding supports
- apply personal values, aptitudes and interests to optional career paths
- recognize entrepreneurial options
- investigate and utilize work-related community resources
- familiarize themselves with student support services
- demonstrate the ability to set short and long term educational and career goals

### **Optional Skills (complete 5 of 7)**

#### **3. Study Skills**

Students will:

- recognize how personal learning style affects perception and processing information
- develop strategies to effectively work in all learning styles
- identify and practice active reading skills necessary to gather information
- develop and apply effective note-taking strategies
- identify strategies for effective time management

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- identify and use a variety of memory techniques and strategies
  - perform tasks in word processing
  - describe student responsibilities in a college environment
  - increase their understanding of the value of life long learning
  - develop and apply effective test taking strategies

#### **4. Personal Awareness Skills**

Students will:

- recognize that self-esteem is a life long process
- recognize personal feelings and their influence
- employ strategies to deal with anger
- assess and manage stress
- analyze and utilize time management strategies
- explore and connect personal assumptions with behaviour
- clarify personal values and their impact on choices
- create awareness of the spiritual, physical, intellectual and emotional dimensions of self

#### **5. Interpersonal Skills**

Students will:

- examine group process and practice the skills necessary for successful group experiences
- review problem solving models and develop group decision making strategies
- research and use the various methods of conflict resolution and demonstrate their use
- clarify the definition of assertiveness and implement successful techniques
- analyze the reasons for bias and develop the ability to recognize it in everyday situations
- identify issues around all forms of prejudice and practice non-discrimatory interpersonal skills
- investigate the various types of relationships and interaction they have with others
- identify methods of developing positive relationships, including effective communication techniques
- examine the diversity of relationships and cultures in Canadian society

#### **6. Living Skills**

Students will:

- design and implement a personal budget
- formulate financial planning for the future
- investigate nutrition and impact on personal health
- assess personal wellness
- investigate and utilize community resources
- strengthen personal support system and advocacy options
- examine the impact of lifestyles choices
- explore techniques for being an effective consumer

#### **7. Job Search**

Students will:

- identify and plan the major steps of the job search process
- develop effective interview strategies
- develop and maintain job search networks
- create effective resume and cover letter

#### **8. Work/Training Experience**

Students will:

- gain exposure to a work or training situation
- demonstrate appropriate work habits

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gather information about vocational choices  
demonstrate interpersonal skills with co workers and supervisors  
identify work adjustment needs and strategies for success  
explore and/or participate in required industry training certificates

## **9. Career Management**

Students will:

- examine labour/union negotiation and human rights
- review Labour Standards Act
- investigate entrepreneurial options
- develop strategies preparing for career transition
- identify rights and responsibilities for employees and employers
- develop strategies and attitudes to maintain employment
- identify workplace ethics

### **Directions to Submitters of Courses**

A generic form should be used and received by the chair of the working committee one month before the meeting. The form needs to list 1 and 2 as mandatory skills as well as five of the remaining seven for EDCP. Proposal submissions will identify how these mandatory core skills are met.

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# ENGLISH

## Goal Statement

Mastering English at the ABE Intermediate, Advanced and Provincial levels is an ongoing process that involves development of a variety of core skills in:

- critical and creative thinking
- speaking and listening
- reading, research and reference, and
- written communication.

As students progress through each level of study, they will apply these skills to more challenging materials and tasks. Although these skills are listed as learning outcomes under discrete headings, they are usually integrated into a course, reflecting a holistic approach to language skill acquisition.

Reading, in particular, is a dynamic and interactive process. The reader integrates personal knowledge and experience with information from text to construct meaning. Reading skills are developed in conjunction with critical thinking, writing, speaking, and listening skills. Students should read to understand periodicals, reports, technical materials, and/or literature.

A number of related skills in the areas of cooperative communication, media literacy, and computer literacy are also part of effective personal, academic and workplace communication. Learning outcomes under these skill areas are not required outcomes, but they are highly recommended for inclusion whenever possible in ABE English courses.

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## Intermediate Level

### Required Learning Outcomes

#### 1. Critical and Creative Thinking

- recall and interpret information
- identify subject/topic, main ideas, supporting ideas, and sequence
- summarize information) make inferences
- compare and contrast
- classify
- define
- draw conclusions
- analyze information and solve problems (create solutions, identify impact of solutions, modify solutions)
- identify and discuss examples of fact and of opinion

#### 2. Speaking and Listening

- ask questions to clarify meaning
- demonstrate effective listening skills
- use voice and body language appropriately and effectively
- respond appropriately to listener feedback
- paraphrase
- deliver an effective oral presentation to inform or persuade
- provide useful input and feedback in a variety of situations (peer editing, group discussion, classroom participation, etc.)

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### **3. Reading, Research, Reference**

- use context clues and word structure analysis (i.e. prefix, suffix, root) to determine meaning
- recognize homonyms, antonyms and synonyms
- use a dictionary and a thesaurus to expand vocabulary
- read to locate specific information
- use reference materials (periodicals, encyclopaedias, textbooks, catalogues, operating manuals, CD-ROMs, World Wide Web)
- use in-book reference tools (index, table of contents, glossary)
- use skimming and scanning techniques
- develop skills in outlining, memorizing, exam taking and note-taking
- recognize illogical argument, fallacies, stereotypes, bias and propaganda
- identify point of view

### **4. Written Communication**

- understand and use the steps of the writing process: prewriting, drafting, revising, and editing
- gather ideas; define and narrow a topic; evaluate, select and organize source materials
- adjust content and style of writing to suit purpose, audience and situation.
- revise and edit work to improve content, organization, word choice, phrasing, sentence and paragraph structure, spelling, punctuation, and mechanics
- write effective paragraphs, essay, summaries, reports, and business letters
- write narrative, descriptive, explanatory and persuasive (expository) pieces
- review a book, movie, play, television program, documentary, or piece of music
- understand and avoid plagiarism

## **Recommended Learning Outcomes**

### **5. Co-operative Communication**

- establish co-operative working relationships with others
- recognize and respect diversity and individual differences
- recognize non-verbal cues
- establish goals and priorities
- respond appropriately to thoughts, opinions, and work of others
- challenge assumptions and traditions constructively

### **6. Media Literacy**

- identify and track a theme, topic, or specified content from a variety of media
- interpret common graphics (graphs, charts, tables)

### **7. Computer Literacy**

- use appropriate computer hardware and peripherals (keyboard, mouse, printer, etc.)
- use word processing software including spell check and thesaurus
- use electronic mail

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## Advanced Level

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Students who have completed Advanced Level work will have the skills necessary to enter Provincial Level courses and some vocational, career, and technological programs.

### Required Learning Outcomes

#### 1. Critical and Creative Thinking

- recall and interpret information (identify subject/topic, main ideas, supporting ideas, and sequence)
- summarize information
- make inferences
  - using prior knowledge
  - synthesizing information
  - evaluating information for accuracy, relevance, and importance
  - recognizing underlying assumptions (bias and tone)
  - identifying purpose and audience
- compare and contrast
- classify
- define
- draw conclusions
- respond to information (create solutions, identify impact of solutions, modify solutions)
- identify and discuss examples of fact and opinion

#### 2. Speaking and Listening

- ask questions to clarify meaning
- demonstrate effective listening skills and respond appropriately to listener feedback
- use voice and body language appropriately and effectively
- provide useful input and feedback in a variety of situations (peer editing, group discussion, classroom participation, etc.)
- respond appropriately to thoughts, opinions, and work of others
- paraphrase ideas
- deliver an effective oral presentation to inform or persuade
- interview and be interviewed for information

#### 3. Reading, Research, Reference

- summarize, make inferences, draw conclusions and critically evaluate
- use context clues and word structure analysis (i.e. prefix, suffix, root) to determine meaning
- use a dictionary and a thesaurus to expand vocabulary and to learn homonyms, antonyms and synonyms
- use in-book reference tools (index, table of contents, glossary)
- use skimming and scanning techniques
- read to locate specific information
- recognize point of view, illogical argument, fallacies, stereotypes, bias and propaganda
- use reference materials (periodicals, encyclopaedias, textbooks, catalogues, operating manuals, CD-ROMs, World Wide Web)
- develop skills in outlining and note taking
- develop search skills (Internet and library catalog searches)

#### 4. Written Communication



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- use the steps of the writing process (prewrite, draft, revise, edit)
  - gather ideas; define and narrow a topic; select, evaluate, and order material into an organized paragraph, essay, summary, and report
  - adjust content and style of writing to suit purpose, audience, and situation
  - revise and edit work to improve content, organization, word choice, phrasing, grammar, sentence and paragraph structure, spelling, and punctuation
  - recognize and edit for clichés, jargon, slang, and wordiness
  - use complex and compound sentence structures
  - use parallel constructions and correct misplaced or dangling modifiers
  - develop advanced spelling strategies
  - review a book, movie, play, television program, documentary, or piece of music
  - produce writing on demand (e.g. business writing, LPI prep, GED prep, essays, exams)
  - write expository (explanatory and persuasive) essays
  - identify, discuss and evaluate literary elements (plot, theme, character, setting, conflict) in works in various media (e.g. print, film, audio)
  - analyze and respond to editorial comment, magazine articles, technical or investigative writing, or advertising
  - gather research and organize it into a research paper using an appropriate documentation style ( e.g. APA, MLA or Chicago)
  - understand and avoid plagiarism

## **Recommended Learning Outcomes**

### **5. Co-operative Communication**

- establish co-operative working relationships with others
- recognize and respect diversity and individual differences
- recognize non-verbal cues
- problem-solve
- challenge assumptions and traditions constructively

### **6. Media Literacy**

- identify and track a theme, topic, or specified content from a variety of media
- interpret common graphics (graphs, charts, tables)
- exhibit a critical awareness of media messages (e.g. TV ads, billboards, corporate sponsorship, videos, brochures, and pamphlets)

### **7. Computer Literacy**

- use appropriate computer hardware and peripherals (keyboard, mouse, printer, etc.)
- use word processing software including spell check and thesaurus
- move information between applications (e.g. word documents, spreadsheets, data bases, WWW)
- communicate effectively using electronic mail

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## Provincial Level

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The following framework describes learning outcomes for three different English courses at the Provincial level:

- Literature-based English (L)
- Technical and Professional English (T)
- Essential English (E)

Any of the three courses will fulfill the Provincial Level English requirement; the choice depends upon the focus of the course and the needs of the student.

The **Literature-based English** course (L), models the traditional academic English course, develops skills in the context of reading and writing about literature, including Canadian literature, from a variety of genres, and prepares students for post-secondary academic English courses.

The **Technical and Professional English** course (T) develops skills required in the context of reading and writing technical, professional and academic documents generated in the modern workplace, and it prepares students for entry into postsecondary courses in many academic, career, and technical programs.

The **Essential English** course (E) develops skills that will enable students to perform the tasks required by their occupation or other aspects of daily life and to graduate with the Adult Graduation Diploma, but is not recommended for entry into post-secondary education.

Sub-headings in the Learning Outcomes that follow serve to identify:

- those outcomes that are shared by more than one course. (e.g. Literature and Technical)
- those outcomes that are unique to one course (e.g. Essential)

## Required Learning Outcomes

### 1. Critical and Creative Thinking

#### Literature and Technical

- recognize tone, including irony and understatement in poetry, short stories, drama or writing for technical and professional purposes.
- evaluate argument for validity, reliability, currency and objectivity
- recognize structural elements associated with particular standard formats for literary or technical and professional communications
- demonstrate an awareness and understanding of
  - the power of language in literary or in technical and professional communications
  - the importance of word choice and organization in furthering the problem solving process (initiating, developing and organizing thought)
  - how communication formats influence language choices and usage

#### Essential

- recognize elements of clear communication
- demonstrate organizational thought processes to solve problems
- evaluate argument for validity, reliability, currency and objectivity
- demonstrate an understanding of how communication formats influence language choices and usage
- record, organize and store information read, heard or viewed
- support a position by citing specific details from what has been read, heard or viewed
- explore diverse perspectives to develop or modify one's point of view
- assess one's own knowledge and use of language

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- assess information for completeness, accuracy, currency, relevance, balance or perspectives and bias
  - analyse different presentations of the same information to reconsider positions
  - assess ways in which language reflects and influences values and behaviour

## **2. Speaking and Listening**

### **Literature, Technical and Essential**

- interact effectively in formal or informal situations
- adjust speaking style to suit audience, purpose, and situation
- use effective presentation aids (e.g. diagrams, line drawings, overheads) to enhance communications

### **Literature and Technical**

- deliver a research-based oral presentation to inform or persuade
- give and respond effectively to feedback during oral presentations
- paraphrase with a critical understanding of arguments

## **3. Reading, Research and Reference**

### **Literature, Technical and Essential**

- summarize, make inferences, draw conclusions and critically evaluate
- evaluate the effectiveness of one's own and others' written presentations using criteria that include the following:
  - plain language
  - coherence and organization
  - consistency in the application of usage conventions
  - relevance to argument of supporting evidence and examples
  - appropriateness to intended purpose and audience
  - attention to detail
- paraphrase main ideas in written (literary, technical, business, or informational) or oral instructions
- distinguish between implicit and explicit messages
- apply prior knowledge and experience to assist understanding of new material
- use a variety of strategies and sources to gather information, including print sources, library resources and the internet

### **Literature and Technical**

- apply knowledge of the influence, writing style, and background of particular authors to understanding of their writings

### **Literature**

- read a variety of works, including those by Canadian authors, in several genres including short stories, novels, poetry and drama.
- place a piece of literature in its historical context
- describe the social and personal benefits of reading great literature

### **Technical**

- read and analyze the content and organization of a variety of writings used in workplace and professional situations (e.g. letters, memos, email, reports, proposals)
- interpret technical and professional information conveyed in graphic and other non-verbal ways

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### Essential

- interpret details in and draw conclusions from information presented in a variety of print and graphic formats, including electronic formats
- read articles, books, stories and poetry

## 4. Written Communication

### Literature and Technical

- edit work fully and competently
- use effective word choice
- use a variety of sentence structures
- use a variety of transition techniques
- use connotative language effectively
- gather information and organize it into a research paper or report of approximately 1500 words using an appropriate documentation style ( e.g. APA, MLA or Chicago)
- understand and avoid plagiarism
- produce writing on demand (e.g. business writing, LPI prep, GED prep, essays, exams)

### Literature

- write literary essays using appropriate structure and development techniques
- discuss literary terms (conflict, theme, character, mood, tone, irony, foreshadowing, archetype, and setting) in the analysis of works studied (e.g. poetry, fiction, drama).

### Technical

- create effective technical and professional documents
- recognize and use language specific to technical and professional writing

### Essential

- gather information and organize it into functional writing assignments, for example, simple reports, letters and memos
- edit own work fully for coherence and accuracy
- monitor spelling, grammar, mechanics and syntax using appropriate techniques and resources as required, including electronic technology
- write effectively, adjusting for audience, purpose and situation to inform, persuade, and interact in formal and informal situations
- organize information and ideas to clarify thinking and achieve desired effect

## Recommended Learning Outcomes

### 5. Cooperative Communication

#### Literature, Technical and Essential

- describe the value and limitations of collaborative work
- collaborate and consult effectively with others in completing communications tasks through means that include:
  - interacting confidently
  - assuming responsibility for roles in teams
  - respecting and promoting respect for the contributions of other team members
  - demonstrating a commitment to the team and to project goals
- employ advanced problem-solving skills in cooperative communication activities (e.g. cooperative team development of business proposal)

- 
- use a variety of resources and technologies when working with others
  - evaluate group processes and individual roles in and contributions to group processes
  - apply various strategies, including consensus-building and formal decision-making techniques to achieve communication goals

## **6. Media Literacy**

### **Literature, Technical and Essential**

- see Intermediate and Advanced Media Literacy

## **7. Computer Literacy**

### **Literature and Technical**

- employ a variety of research tools and resources including Internet search engines, information sites and on-line services
- use appropriate software for presentations and research projects to:
  - support and enhance writing skills
  - organize information (e.g. tables of contents)
  - design page layouts
  - develop and incorporate graphs, charts and other illustrative aids into documents

### **Essential**

- use technology to support and enhance writing skills and organize information

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# **FIRST NATIONS STUDIES**

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## **Goal Statement**

The ABE First Nations Working Committee was formed as a result of a growing trend among First Nations educators across the province to have more relevant courses and programming available to First Nations students at the ABE level. The committee's vision is for both aboriginal and non-aboriginal students to become more aware of First Nations peoples and their ways of knowing, their relationship with the land, and their history before and after contact with the Europeans.

The Committee acknowledges the importance of First Nations academics, researchers and instructors at BC post-secondary institutions having a sense of ownership and control in regards to pedagogical practices developed from their own culture and values. The Committee will articulate both transferable skill-based curriculum and culturally relevant content-based curriculum, as well as determining BCCAT level placement for all First Nations ABE courses.

In addition, the Committee will assist other working committees in fulfilling learning outcomes by integrating aboriginal knowledge into their courses. The committee's mission is to serve as a voice for First Nations educators and students in BC as well as providing support to all educators wanting to develop culturally relevant curricula.

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# **FUNDAMENTAL LEVEL SKILLS**

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## **Goal Statement**

Adult Basic Education at the Fundamental level is designed to provide students with the skills necessary to cope more effectively in personal, work and educational situations. Although the skills are presented as discrete units, an integrated approach is recommended.

The subject areas described in the Fundamental Level are Coping Skills, English (Reading and Writing) and Mathematics. While Social Studies and Science are not delineated as discrete content areas here, an integrated approach to teaching fundamental skills and strategies incorporates Social Studies and Science content. Such an approach assists learners to acquire a better understanding of themselves, their communities and their participation in Canadian society by using real-life materials, activities and experiences in their studies.

Computers are increasingly becoming a pervasive part of daily life in personal, work and educational situations. Computer skills are introduced at the fundamental level to help students gain the confidence to perform basic computer operations.

Ideally, through the process of upgrading, students integrate skills and strategies and use them in their daily lives. The outcome is improved self-confidence, self-reliance and self-evaluation.

Although no attempt has been made to dictate sequence, delivery mode, or teaching style in this outline, students' personal literacy goals should be reflected in the design of a Fundamental Level program. The topics listed with each core skill are neither exhaustive nor exclusive. Additional information can be found in the Ministry's Adult Basic Education and Literacy Curriculum Guides.

## **Prerequisites**

Ability to speak and understand English.

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## **Fundamental Level I. Learning Skills**

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### **General Statement**

The communicative and adaptive skills should enable students to develop effective strategies for interacting with other people in a variety of situations, for problem solving and for responding to information.

It is recommended that learning skills be integrated with other instructional areas. Informal assessment will indicate where discrete instruction is necessary.

### **Core Skills**

Communicative Skills  
Adaptive Strategies

#### **A. Communicative Skills**

The student will demonstrate the ability to:

1. Listening and Viewing
  - establish purposes for listening and/or viewing
  - develop literal, interpretive, inferential, and critical comprehension skills
  - follow instructions and directions

- 
2. Speaking
    - organize thoughts and ideas in terms of purpose, sequence, language, and conciseness
    - give directions, explanations, and instructions
    - seek, provide, and use information constructively

## **B. Adaptive Strategies**

The student will demonstrate the ability to:

1. Learning Skills
  - study effectively
  - manage time effectively
  - set goals effectively
  - solve problems effectively
  - write tests effectively
  - become aware of self as learner: learning style, self-monitoring, self-correcting and self-evaluating
2. Computer Skills
  - use basic knowledge of computers
  - list the main (hardware) parts of the computer
  - describe a disc and its care and limitations
  - describe some common uses of computers in society
  - use computer skills
  - use correct touch typing techniques and procedures for letters but not for top row numbers/symbols
  - achieve a typing speed of 10 wpm, or alternatively a speed equal to their handwriting speed
  - word process
  - create a document
  - use simple editing tools including cursor control, backspace-delete, insert blank lines and spaces into documents, cut and paste sentence fragments and paragraphs
  - save a document
  - print a document
  - retrieve a document from disc
3. Use community resources for information
  - locate and access library
  - locate and access and public agencies
  - locate and access community access centres
  - locate and access municipal/local resources
  - locate and access health services
  - locate and access community legal services

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## **Fundamental Level II. English Skills**

English skills have been divided into two sections: reading and writing. While the skills and strategies have been separated, it is clear that they overlap and complement one another.

### **SECTION ONE: READING**

#### **General Statement**

Reading is a dynamic, interactive process. The reader integrates personal knowledge and experience with information from text to construct meaning. The skills and strategies of reading should be adjusted to accommodate the states of reading readiness, learning to read, and reading to learn. Reading at all levels is facilitated by instruction, which presents reading skills and strategies as parts of an integrated process focusing on reading as written communication.

#### **Core Skills**

Reading Comprehension Skills  
Reading Comprehension Strategies  
Word Analysis Skills/Decoding Skills

##### **A. Reading Comprehension Skills**

Using a variety of real life materials including personal experience stories, magazine articles, novels, and short stories, the student will demonstrate the ability to:

1. Literal Comprehension  
identify subject/topic, main ideas, supporting details, and sequence
2. Interpretive Comprehension
  - a) reconstruct the meaning intended by writer
  - categorize and classify
  - summarize
3. Inferential Comprehension  
synthesize/integrate experience and knowledge to gain new understandings  
predict
4. Critical Comprehension  
recognize comparison and contrast  
recognize cause/effect, outcome or sequence  
distinguish between fact and opinion, logic and illogic  
identify writer's point of view, tone, attitude, and underlying assumptions  
develop critical thinking skills, i.e. appreciation, judgment, character analysis

##### **B. Reading Comprehension Strategies**

The student will demonstrate the ability to:

1. Preview/survey: initial overview of large sections of text (chapters, etc.)  
note headings, titles, overviews  
self-question to activate prior knowledge: What do I already know about the topic?
2. Pre-read: overview of shorter sections of text  
change headings into questions



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self-question: What is the author's purpose? How is the author presenting material? i.e. general to specific, cause-effect, question-answer, problem-solution, compare-contrast

3. Monitor evaluation of current level of understanding
  - a) self-question: Do I understand what I am reading? What is the main idea? (paraphrase in own words.) How does this relate to what I already know?
4. Reflect: evaluation of comprehension in retrospect  
self-question: Did I understand what I just read? What is the main idea? (paraphrase in own words)  
How does this relate to what I already know?
5. Take notes, outline to integrate information

### **C. Word Analysis Skills/Decoding Skills**

The student will demonstrate the ability to:

- develop a sight vocabulary
- use context clues
- use the dictionary, glossary and thesaurus as tools for vocabulary development, pronunciation, meaning and spelling confirmation
- use structural analysis (e.g. roots, affixes, syllabication, stress, compound words, contractions)
- demonstrate phonemic awareness (short and long vowels, vowel combinations, single consonants and combinations, and associated word patterns)
- demonstrate a strategy for learning and remembering new words

## **SECTION TWO: WRITING**

### **General Statement**

The writing process should focus on the written communication of information and ideas in a variety of practical situations and a variety of forms.

Students will be introduced to and practice the following writing skills.

- Writing Core Skills
- General Writing
- Grammatical Structures
- Punctuation
- Spelling
- Handwriting

### **A. General Writing**

In writing, the student will demonstrate the ability to:

- collect and organize ideas using techniques such as free writing, brain storming, note taking, outlining, and thought maps
- note take, outline, and prepare thought maps
- use paragraph format including topic sentence, supporting details, and conclusion
- produce coherent descriptive, narrative, and expository paragraphs
- produce personal and business letters using a standard format
- begin to write multi-paragraph compositions
- fill out a variety of simple forms
- respond to selected materials after reading, viewing, and/or listening

### **B. Grammatical Structures**

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In writing, the student will demonstrate the ability to:

- identify and correct fragments and run-ons
- use simple, compound, and complex sentences
- use regular and irregular verb forms
- use subject-verb agreement and consistent verb tense
- use standard pronoun reference and agreement
- use modifiers effectively

### **C. Punctuation**

In writing, the student will demonstrate the ability to:

- use capitals
- use end punctuation
- use commas
- use quotation marks, semi-colons, colons, hyphens, and dashes

### **D. Spelling**

In writing, the student will demonstrate the ability to:

- develop effective spelling strategies such as accurate phoneme/grapheme representation (phonics), structural analysis, generalizations, and sight words
- know common irregularly spelled words
- use a dictionary and other spelling aids
- recognize and use homonyms, antonyms, and synonyms
- use rules for adding affixes
- form contractions and abbreviations

### **E. Handwriting**

The student will demonstrate the ability to:

- Print/write with ease, legibility, and reasonable speed

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## **Fundamental Level III. Mathematics Skills**

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### **Goal Statement**

Fundamental Level Mathematics will give students a strong foundation of basic skills, concepts, mathematical vocabulary, and problem solving strategies to prepare them to meet personal, career or further academic goals such as Intermediate Level Mathematics.

Students are expected to develop conceptual understanding as well as skills. They are expected to apply the mathematical concepts and skills learned to a variety of problem-solving situations.. They are to be encouraged to develop mental math and estimation skills in order to increase their confidence and competence in mathematics.

**NOTE:** Calculators should be used to check calculations not perform them. In special circumstances, the use of a calculator may be permitted for calculations.

### **Core Learning Outcomes**

#### **A. Estimation**

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Students will demonstrate the ability to:

estimate quantities appropriately  
estimate answers to calculations  
distinguish between a reasonable and an unreasonable estimation  
apply estimation skills in each of the Learning Outcomes categories

## **B. Problem Solving**

Students will demonstrate the ability to:

apply mathematical skills and concepts to solve word problems  
apply their mathematical skills and concepts to real life situations  
Examples: handling money, banking, unit pricing and comparison-shopping, interest/credit payment  
apply problem solving skills in each of the Learning Outcomes categories

## **C. Whole Numbers**

Students will demonstrate the ability to:

1. identify place value to millions
2. read and write numbers to millions
3. round numbers to the nearest 10s, 100s, 1 000s, 10 000s, 100 000s, and 1 000 000s
4. add, subtract, multiply and divide
5. calculate the average of a group of numbers
6. recognize equalities and inequalities (  $<$ ,  $=$ ,  $>$ ,  $\neq$ ,  $\approx$  )
7. draw and use a number line starting at zero
8. write and identify numbers expressed as multiples of 10
9. identify multiples and least common multiples

## **D. Decimals**

Students will demonstrate the ability to:

interpret decimals as part of a whole  
identify place value to ten-thousandths  
read and write decimals to ten-thousandths  
round off decimal numbers to a given place value  
compare decimals in order of value  
add, subtract multiply and divide  
calculate the average of a group of decimals  
convert decimals and fractions from one notation to another  
multiply and divide using multiples of 10

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## **E. Fractions**

Students will demonstrate the ability to:

- interpret fractions as part of a whole
- add, subtract, multiply and divide fractions and mixed numbers
- simplify fractions and write equivalent fractions
- compare fractions and/or mixed numbers in order of value
- convert fractions and decimals from one notation to another
- calculate the average of a group of fractions

## **F. Ratio, Proportion, and Percent**

Students will demonstrate the ability to:

- write the relationship between two numbers or quantities as a ratio
- write proportion as a statement of equivalence between two ratios
- determine if a proportion is true
- solve a proportion for a missing term
- recognize % notation as a denominator of 100
- convert percents, fractions, and decimals from one notation to another
- express the relationship between two numbers as a percent
- solve problems involving discount, increase, simple interest, commission and tax

## **G. Measurement**

Students will demonstrate the ability to:

1. Metric System
  - a) define the basic pre-fixes of the metric system: kilo, hecta, deca, units, deci, centi, and milli
  - c) convert measurements within the metric system
  - d) use appropriate metric measuring instruments and read metric scales to measure length, distance, , height, mass and capacity and temperature
  - e) add and subtract

Temperature

- a) use both Celsius and Fahrenheit scales

Time

- a) use 12-hour AM/PM clock notation
- b) use the 24-hour System International clock notation
- c) convert from 12-hour notation to 24-hour notation and vice versa
- d) add and subtract time measurements

Simple Geometric Shapes

- a) define and identify squares, rectangles, triangles and circles
- b) calculate perimeter and area of squares and rectangles

## **H. Statistics and Data Analysis**

Students will demonstrate the ability to:

- read and obtain information from bar, line, and circle graphs, tables, pictographs, and histograms

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# **MATHEMATICS**

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## **Mathematics: Intermediate Level**

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### **Goal Statement**

The goal of Intermediate Mathematics is to enable adult learners to acquire mathematical knowledge, skills, and strategies needed to enter appropriate higher level courses or to satisfy personal or career goals.

An Integrated Resource Package, containing learning outcomes, suggested instructional and assessment strategies and suggested resources, has been developed for use in Intermediate Level Mathematics.

### **Learning Outcomes**

#### **1. Estimating Skills/Calculator Use**

- estimate answers to problems
- use a scientific calculator to calculate and solve problems involving adding, subtracting, multiplying and dividing whole numbers, fractions and decimals
- check that answers and solutions to problems are reasonable in the context of the given question

#### **2. Measurement**

- use the common metric units for temperature, length, area, volume/capacity, and mass
- use the common Imperial units for temperature, length, area, volume/capacity, and force
- convert between and within metric and Imperial units using tables and/or calculators
- take and read measurements with common measuring tools (e.g. thermometer, ruler, measuring tape, triple beam balance, bathroom scale, stop watch, vernier caliper, micrometer) (optional)
- describe and apply precision, accuracy and tolerance (optional)
- estimate in metric and Imperial units of measurement (optional)

#### **3. Perimeter, Area, and Volume**

- find perimeters of triangles, squares, rectangles, parallelograms, trapezoids, circles and composite figures by measuring and using formulas
- find areas of the above shapes by measuring and using formulas
- find the surface of cubes, rectangular solids, cylinders, cones, spheres, and composite solids by using formulas
- find the volumes of cubes, rectangular solids, cylinders, cones, spheres, and composite solids by using formulas
- distinguish between concepts of perimeter and area and their respective units

#### **4. Ratio and Proportion**

- read, write, interpret, and compare ratios
- read, write and identify proportions and use them to solve problems
- use ratio and proportion to interpret and make scale drawings
- use proportions to solve problems involving similar triangles

#### **5. Percent**

- use ratios and proportions to solve problems involving:
  - i) finding % when part and whole are known
  - ii) finding part when % and whole are known
  - iii) finding whole when part and % are known

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## 6. Geometry

name and draw points, lines, rays, segments, and angles

name and draw triangles, quadrilaterals, other common polygons and circles

construct with a compass and straight edge:

- i) the perpendicular bisector of a line segment
- ii) the bisector of an angle
- iii) a copy of an angle (optional)
- iv) parallel lines (optional)
- v)  $30^\circ$ ,  $45^\circ$ , and  $60^\circ$  angles (optional)

classify and distinguish among acute, right, obtuse, straight, reflex, complementary and supplementary and vertically opposite angles

describe the angle relationships created when parallel lines are cut by a transversal

measure angles with a protractor

classify triangles according to sides and angles

identify similar and congruent figures

## 7. Statistics

conduct a survey to collect data

tabulate the data

calculate median, mean, mode, and range

graph the data

interpolate and extrapolate from the information provided

## 8. Signed (Rational) Numbers

a) add, subtract, multiply, and divide signed (rational) numbers

i) demonstrate order of operations with signed (rational) numbers

ii) graph signed (rational) numbers on the number line

iii) define absolute value

## 9. Algebra

a) explain the use of variables

b) evaluate algebraic expressions using substitution

c) combine like terms and remove parentheses

d) solve first degree equations in one variable

e) translate a problem into an equation

f) use equations to solve problems

g) solve simple formulas for one variable

h) use formulas to solve problems

*PLUS:*

Units 1 to 9 of the Learning Outcomes are the core units of the Intermediate Level Math course. To complete the course, students should choose one from A, or B, or C below.

Selection A prepares the student for Advanced Level Algebraic Math or Advanced Level Developmental Math. Selection B is intended for students exiting the ABE structure at the Intermediate Level. Section C is self-explanatory.

## A 10. Powers, Roots, and Scientific Notation

a) read and write numbers expressed as powers

b) calculate powers with integral exponent

c) use the rules of exponents to calculate products and quotients of powers with the same base

d) use the rules of exponents to calculate the powers of powers

e) express numbers using scientific notation

f) convert between scientific and standard notation

g) read and write numbers expressed as roots

h) calculate using roots

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## Polynomials

- add and subtract polynomials
- multiply and divide polynomials by a monomial
- remove common factors from polynomials

## Trigonometry

- name the parts of a right triangle
- find the missing side of a right triangle using the Pythagorean Theorem
- find the measure of an unknown side or angle of a right triangle using sine, cosine, or tangent ratios
- solve problems using right angle trigonometry

## Graphing

- a) draw a Cartesian co-ordinate system
- b) plot and name points in a Cartesian co-ordinate system
- c) given an equation in two variables:
  - i) determine if an ordered pair is a solution
  - ii) find ordered pairs solutions
  - iii) create a table of values
- d) graph linear equations
- e) determine the slope of a line given two points on the line
- f) relate slope to grade and pitch
- g) find x and y intercepts
- h) solve problems using graphs of linear equations

### **B 10. Additional material pertaining to specific vocations**

### **C 10. Additional material in preparation for the non-algebraic Mathematics options at the Advanced Level**

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## **Mathematics: Advanced Level - Algebraic Mathematics**

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### **Goal Statement**

The goals for Advanced Algebraic Mathematics are (1) to provide students with sufficient mathematical knowledge for academic, career, and technical programs whose admission requirements include Math 11 equivalence and (2) to prepare students to enter Provincial Level mathematics courses.

### **Learning Outcomes**

It is expected that learners will use a scientific calculator to evaluate complex expressions with emphasis on using special keys to perform a variety of functions. The use of a graphing calculator or other technology is optional.

#### **1. Basic Algebraic Skills Review**

Note: A review of the following basic algebraic skills is suggested but not required. It is expected that learners will be able to:

- a) perform operations with real numbers including absolute value and exponential notation
- b) simplify expressions using rules for order of operations and properties of exponents
- c) translate common language into algebraic expressions
- d) evaluate algebraic expressions by substitution
- e) simplify algebraic expressions with nested parentheses

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## 2. Solving Linear Equations and Inequalities

It is expected that learners will be able to:

- solve first degree/linear equations in one variable
- solve simple formulas for a given variable
- solve and graph linear inequalities in one variable
- write set-builder and/or interval notation for the solution set or graph of an inequality
- use linear equations, formulas and linear inequalities to solve applied problems
- find the union or intersection of two sets
- solve and graph compound inequalities (conjunctions and disjunctions)
- solve absolute value equations

## 3. Graphing, Relations, and Functions

It is expected that learners will be able to:

- a) write linear equations in slope intercept form
- b) graph linear equations and non-linear equations using a table of values
- c) graph linear equations using the y-intercept and slope and using x- and y-intercepts
- d) graph horizontal and vertical lines
- e) find the slope of a line given two points on the line
- f) find the equation of a line given graphic data: the slope and y-intercept, the slope and one point, or two points on the line
- g) determine whether a pair of lines is parallel, perpendicular or neither
- h) find the equation of a line parallel or perpendicular to a given line and through a given point
- i) use the definition of function and the vertical-line test to distinguish between functions and non-functions
- j) use and interpret function notation to evaluate functions for given x-values and find x-values for given function values
- k) determine the domain and range of a function
- l) graph linear functions and non-linear functions such as quadratic, cubic, square root, reciprocal, and absolute value functions
- m) graph linear inequalities in two variables

*Optional Outcomes:*

- n) graph exponential functions
- o) analyze functions to determine line of symmetry, vertices, asymptotes, and intercepts
- p) understand and demonstrate transformations in graphs resulting from the following changes in the defining equation: translation, reflection, dilation
- q) use a graphing calculator or other appropriate technology to graph equations
- r) identify an appropriate graph for a given relation
- s) develop a model function from a given graph or set of data
- t) perform linear regression using a graphing calculator to fit a linear function to data

## 4. Systems of Linear Equations and Inequalities

It is expected that learners will be able to:

- a) solve systems of linear equations in two variables by graphing, substitution and elimination methods
- b) determine if a system of equations will have no, one or an infinite number of solutions
- c) use systems of equations to solve applied problems

*Optional Outcomes:*

- d) solve systems of equations in three variables and applied problems using such systems
- e) graph the solution for a system of linear inequalities in two variables
- f) use a graphing calculator or other appropriate technology to solve systems of equations and inequalities



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## 5. Polynomials and Polynomial Functions

It is expected that learners will be able to:

- a) determine the degree of a polynomial
- b) distinguish between monomials, binomials, trinomials, and other polynomials
- c) add, subtract, multiply polynomials
- d) divide polynomials by monomials
- e) factor polynomials using an appropriate strategy or a combination of techniques: common factors, difference of squares, difference and sum of cubes, perfect square trinomials, trial/error, or grouping
- f) solve polynomial equations using the principle of zero products
- g) solve applied problems using polynomial equations/ functions

*Optional Outcomes:*

- h) divide polynomials and binomials using long division
- i) divide polynomials and binomials using synthetic division

## 6. Rational Expressions and Equations and Variation

It is expected that learners will be able to:

- a) identify situations and find values for which a rational expression will be undefined
- b) simplify rational expressions
- c) add, subtract, multiply and divide rational expressions
- d) solve rational equations and check
- e) solve formulas involving rational expressions for a given variable
- f) solve applied problems that can be modeled with rational equations
- g) simplify complex fractions
- h) express variations in the form of equations (direct, inverse, joint, combined)
- i) solve problems involving direct, inverse, joint and combined variation

## 7. Radical Expressions and Equations

It is expected that learners will be able to:

- write radicals as powers with rational exponents and vice versa
- use rational exponents to simplify radical expressions
- simplify, add, subtract, multiply and divide radical expressions (numeric or algebraic)
- rationalize denominators in fractional expressions containing radicals (including the use of conjugates)
- solve equations involving radical expressions or powers with rational exponents and check for extraneous roots
- solve formulas involving powers and square roots for a given variable
- solve applied problems which can be modeled by radical equations, and determine if solutions are reasonable given the context of the problem

*Optional Outcomes:*

- identify imaginary and complex numbers and express them in standard form
- add, subtract, multiply, and divide complex numbers

## 8. Quadratic Equations and Quadratic Functions

It is expected that learners will be able to:

- solve quadratic equations by factoring, principle of square roots, completing the square and the quadratic formula
- use the discriminate to identify the number and type of solutions of a quadratic equation
- write a quadratic equation given its solutions
- solve rational and radical equations reducible to a quadratic pattern and check that answers are reasonable
- solve selected polynomial equations that can be factored simplifying to linear and/or quadratic factors

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graph quadratic functions of the form  $f(x) = a(x-h)^2 + k$  and demonstrate translations, reflections and stretching/shrinking resulting from changes in the function equation  
find the vertex, line of symmetry, minimum or maximum values, x- and y-intercepts, domain and range, given the function  $f(x) = a(x-h)^2 + k$   
rewrite  $f(x) = ax^2 + bx + c$  as  $f(x) = a(x-h)^2 + k$  by completing the square  
solve problems that can be modeled using quadratic equations including maximum and minimum problems

*Optional Outcomes:*

solve quadratic equations having complex number solutions  
use a graphing calculator or other appropriate technology to graph and solve quadratic equations  
solve quadratic inequalities by graphing  
solve polynomial and rational inequalities algebraically

## 9. Trigonometry

It is expected that learners will be able to:

label the sides of a right triangle with respect to a given angle  
determine sine, cosine, and tangent ratios of an angle in a right triangle using the side lengths  
use a scientific calculator to find the trigonometric value for a given angle and to find an angle given its trigonometric value  
solve right triangles and applied problems using the basic trigonometric ratios, the Pythagorean theorem, and sum of the angles ( $180^\circ$ )  
use the Law of Sines and the Law of Cosines to solve non-right (oblique) triangles and applied problems

*Optional Outcomes:*

use  $A = \frac{1}{2}bc\sin A$  to find the area of a triangle  
determine the quadrant for positive and negative angles in standard position  
identify coterminal angles  
determine primary trigonometric function values for angles in standard position  
identify reference angles  
evaluate primary trigonometric functions for any angle in a variety of conditions  
solve trigonometric equations involving the primary functions over a specific domain  
use the trigonometric definitions to deduce unknown trigonometric values from given values

## 10. Optional Topics

Learners may wish to complete either A or B but these outcomes are not required.

### A. Geometry

- i) recall the properties of parallel lines, similar and congruent figures, polygons, angle relationships, angle measurements, and basic compass and straightedge construction
- ii) demonstrate an understanding of the following properties of a circle:
  - the perpendicular bisector of a chord passes through the centre of the circle
  - the line joining the midpoint of a chord to the centre is perpendicular to the chord
  - the line through the centre, perpendicular to a chord, bisects the chord
  - central angles containing equal chords or arcs are equal (the converse is also true)
  - inscribed angles containing the same or equal chords (on the same side of chord) or arcs are equal
  - an inscribed angle equals half the central angle containing the same or equal chords (on the same side of chord) or arcs are equal
  - an inscribed angle in a semicircle measures  $90^\circ$
  - opposite angles of a cyclic (inscribed) quadrilateral are supplementary
  - a tangent is perpendicular to the radius at the point of contact (the converse is also true)
  - tangents from an external point are equal
  - the angle between a chord and tangent equals the inscribed angle of the opposite side of the chord (the converse is also true)

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iii) demonstrate and clearly communicate deductive reasoning in the solution of applied problems

## **B. Data Analysis**

- i) explain the uses and misuses of statistics
- ii) demonstrate an understanding of mean, median, mode, range, quartiles, percentiles, standard deviation, the normal curve, z scores, sampling error and confidence intervals
- iii) graphically present data in the form of frequency tables, line graphs, bar graphs, and stem and leaf plots
- iv) design and conduct statistics project, analyze the data, and communicate the outcomes

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# **Mathematics: Advanced Level - Business/Technical Mathematics**

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## **Goal Statement**

The goal of Advanced Business/Technical Mathematics is to provide the student with practical applications useful in future vocational training, careers, or personal life.

## **Learning Outcomes**

### **1. Operations with Real Numbers**

It is expected that learners will be able to:

- add, subtract, multiply and divide rational numbers
- evaluate powers with rational bases and integer exponents
- demonstrate the order of operations with rational numbers
- evaluate radicals and distinguish between exact answers and approximate answers
- write numbers in scientific notation, convert from scientific notation to decimal notation, and multiply and divide numbers expressed in scientific notation
- use a scientific calculator

### **2. First Degree Equations and Inequalities**

It is expected that learners will be able to:

- solve first degree equations, in one variable, including those involving parentheses
- solve formulas for a given variable
- solve first degree inequalities in one variable
- solve practical problems using a first degree equation

### **3. Equations and their graphs**

It is expected that learners will be able to:

- plot points on a coordinate system
- use number pairs to name points on the coordinate system
- determine whether a given point is a solution to an equation in two variables
- (optional) create an appropriate table of values and recognize the graph of the following relations:
  - $y = ax + b$  (linear)
  - $y = ax^2 + bx + c$  (quadratic)
  - $y = a/x$  (reciprocal)
  - $y = a(bx)^{1/2}$  (square root)
  - $y = a(b^x)$  (exponential) where a, b, and c are real numbers
- (optional) given the graph of an equation, determine, where appropriate, the following:
  - x and y intercepts
  - vertex
  - slope

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## Optional Learning Outcomes

Learners must complete a minimum of four of the following:

### A. Consumer Mathematics

It is expected that learners will be able to:

- solve consumer problems involving unit prices, wages earned in various situations, taxation problems, and exchange rates
- reconcile financial statements
- solve budget problems
- solve investment and credit problems involving simple and compound interest

### B. Finance

It is expected that learners will be able to:

- solve problems involving compound interest
- find the effective interest rate
- solve annuity problems
- solve loan and mortgage problems
- determine the finance charge on a loan

### C. Data Analysis

It is expected that learners will be able to:

- determine the mean, median, mode and range from a set of data
- interpret and/or construct frequency tables, broken line graphs, bar graphs, and stem-plots from a set of data
- (optional) find quartiles and the percentile represented by a given data value
- (optional) calculate the standard deviation of a set of data using appropriate technology
- (optional) use Z scores to analyze normally distributed data
- design a statistical experiment, collect the data, analyze and communicate the results

### D. Measurement

It is expected that learners will be able to:

- solve problems involving composite shapes and solids, with reference to perimeter, area, volume and surface area
- calculate maximum and minimum values, using tolerances, for lengths, areas and volumes
- enlarge or reduce a dimensional object according to a specified scale

### E. Geometry

It is expected that learners will be able to:

- use any of the following angle properties to determine an angle in a drawing:
  - vertically opposite angles
  - corresponding angles, alternate interior angles, and angles on the same side of the transversal
  - angles on a line
  - angles on a point
  - complementary and supplementary angles
  - angle sum of a triangle

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classify triangles and quadrilaterals according to their sides and angles

draw triangles given:

- three sides
- two sides and an included angle
- two angles and a side

draw quadrilaterals given various combinations of sides, angles, and diagonals

#### **F. Trigonometry**

It is expected that learners will be able to:

solve right triangles using one or more of

- i) the sine ratio
- ii) the cosine ratio
- iii) the tangent ratio
- iv) the Pythagorean theorem
- v) the angle sum property of triangles

(optional) solve triangles using the Law of Sines and/or the Law of Cosines (excluding the ambiguous case)

#### **G. Systems of Equations**

It is expected that learners will be able to:

solve systems of linear equations in two variables graphically and/or algebraically

graph linear inequalities in two variables

solve graphically, systems of linear inequalities

solve practical problems

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## **Mathematics: Advanced Level - Developmental Mathematics**

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### **Goal Statement**

The goal of Advanced Developmental Mathematics is to provide students with sufficient algebra, geometry, and trigonometry to satisfy grade 11 prerequisites for some vocational, career, technical, and/or further academic programs.

### **Learning Outcomes**

#### **1. Operations with Real Numbers**

It is expected that learners be able to:

write fractions as decimals and repeating decimals as fractions

add, subtract, multiply and divide rational numbers

evaluate powers with rational bases and integer exponents

demonstrate the order of operations with rational numbers

evaluate radicals with rational radicands and distinguish between exact answers and approximate answers

simplify, add, subtract, multiply and divide square roots

#### **2. First Degree Equations and Inequalities**

It is expected that learners will be able to:

solve first degree equations, in one variable, including those involving parentheses.

solve formulas for a given variable when other variables are known

solve formulas for a given variable

solve first degree inequalities in one variable

solve practical problems that can be solved using a first degree equation

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### 3. Polynomials

It is expected that learners will be able to:

- distinguish between monomials, binomials, trinomials and other polynomials (in one variable only)
- apply the laws of exponents to variable expressions with integral exponents
- evaluate polynomials by substitution
- add, subtract, and multiply polynomials
- factor polynomials by removing the largest common factor
- factor binomials of the form  $a^2x^2 - b^2y^2$  and trinomials of the form  $x^2 + bx + c$
- solve quadratic equations using the law of zero products
- (optional) factor trinomials of the form  $ax^2 + bx + c$

### 4. Rational Expressions

It is expected that learners will be able to:

- simplify, by factoring, rational expressions consisting of polynomial numerators and either monomial, binomial, or trinomial denominators
- determine values for which a rational expression is undefined
- multiply and divide rational expressions
- add and subtract rational expressions consisting of monomial and/or binomial denominators
- solve simple rational equations and check solutions

### 5. Linear Equations

It is expected that learners will be able to:

- graph a linear equation including the forms  $x = a$  and  $y = b$
- given a linear equation or its graph, determine its
  - i) slope
  - ii) x and y intercepts
- determine the equation of a line,  $y = mx + b$ , given
  - i) its graph
  - ii) its slope and a point on the line
  - iii) two points on the line

### 6. Systems of Linear Equations

It is expected that learners will be able to:

- solve a system of first degree equations in two unknowns by graphing, substitution, and elimination methods
- solve practical problems that can be solved using a system of equations

### 7. Radical Expressions

It is expected that learners will be able to:

- simplify square roots with variable radicands
- add, subtract, multiply and divide square roots with variable radicands
- solve equations with one square root containing a polynomial radicand and check for extraneous solutions

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## 8. Trigonometry

It is expected that learners will be able to:

solve right triangles using one or more of

- i) the sine ratio
- ii) the cosine ratio
- iii) the tangent ratio
- iv) the Pythagorean theorem
- v) the angle sum property of triangles

evaluate sine and cosine for angles from  $0^\circ$  to  $180^\circ$  (optional)

solve triangles using the Law of Cosines or the Law of Sines, excluding the ambiguous case (optional).

## 9. Optional Learning Outcomes

Students must complete one of the following four optional topics:

### A. The Quadratic Equation

It is expected that students will be able to:

solve quadratic equations by factoring

solve equations of the form  $x^2 + bx + c = 0$  by completing the square

solve quadratic equations by using the quadratic formula

graph  $y = ax^2 + bx + c$  and determine its

- i) x and y intercepts
- ii) vertex

solve practical problems that can be solved using a quadratic equation.

### B. Statistics

It is expected that learners will be able to:

determine the mean, median, mode, range and standard deviation of a set of data

represent data graphically using broken line graphs and bar graphs

understand how the normal curve can be used to describe a normally distributed population

calculate Z - scores and determine areas under the normal curve

use areas under the normal curve to analyze data in terms of the probability of various events.

### C. Financial Mathematics

It is expected that students will be able to:

solve simple interest problems using the formula,  $i = prt$ , (for any variable)

solve compound interest problems for A or P using

$$A = P\left(1 + \frac{r}{n}\right)^{nt}$$

find the effective interest rate using

$$E. R. = \left(1 + \frac{r}{n}\right)^n - 1$$

solve annuity problems using

$$A = \frac{nP\left[\left(1 + \frac{r}{n}\right)^{nt} - 1\right]}{r}$$

(for A or P only)

---

find periodic payment using

$$P = \frac{A\left(\frac{r}{n}\right)}{1 - \left(1 + \frac{r}{n}\right)^{-nt}}$$

determine the finance charge on a loan

determine the interest rate on a loan using tables or appropriate technology

#### D. Geometry

It is expected that students will be able to:

classify triangles according to angles and sides

use the properties of triangles to determine the measure of sides and angles

determine the measure and/or congruence of angles given a transversal and two parallel lines

use the triangle congruence theorems in simple guided proofs

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## Mathematics: Provincial Level (Algebra and Trigonometry)

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### Goal Statement

The goals of the Provincial Algebra and Trigonometry are to prepare adult learners with the knowledge and skills in algebra and trigonometry necessary for entry to technical, vocational and career programs that require Math 12 equivalency as a prerequisite and for future study in higher-level math courses at college/university.

### Learning Outcomes

#### 1. Algebra Review

Note: A review of the following outcomes is suggested, but not required.

It is expected that learners will be able to:

recognize subsets and identify properties of real numbers

use interval notation to write a set of numbers

evaluate absolute value of a real number and find the distance between two real numbers

use rules for order of operations and properties of exponents to simplify expressions

add, subtract, and multiply polynomials and factor a polynomial completely

determine the domain of a rational expression, simplify rational expressions, perform operations with rational expressions and simplify complex rational expressions

use properties of radicals to simplify expressions with rational expressions

rationalize the denominator or numerator in a rational expression

use properties of radicals to simplify and combine radicals

define imaginary and complex numbers, express them in standard form, and perform operations with complex numbers

solve linear equations, equations with absolute value, quadratic equations, radical equations, and equations reducible to a quadratic form

solve linear inequalities, combined inequalities, and absolute value inequalities and graph the solutions on a number line

solve applied problems using linear and quadratic equations

solve equations of variation and applied problems involving variation

solve systems of linear equations in two variables and in three variables

distinguish between consistent/inconsistent and dependent/independent systems

use systems of linear equations to solve applied problems

#### 2. Functions and Graphs

It is expected that learners will be able to:



- 
- a. find the distance between two points in the plane and find the midpoint of a segment
  - b. apply the distance formula and mid-point formula to solve problems
  - c. recognize graphs of common functions: linear, constant, quadratic, cubic, square root, absolute value, reciprocal
  - d. use the vertical line test to identify functions
  - e. graph functions and analyze graphs of functions, identifying: domain and range; intervals on which the function is increasing, decreasing or constant
  - f. write formulas or functions to model real life applications
  - g. determine whether a graph is symmetric with respect to the  $x$ -axis,  $y$ -axis, and the origin
  - h. identify even or odd functions and recognize their symmetries
  - i. graph transformations of functions: translations, reflections, stretchings and shrinkings
  - j. graph functions defined piecewise
  - k. find the sum, difference, product and quotient of two functions and determine their domains
  - l. find the composition of two functions  $f$  and  $g$ , finding formulas for  $f(g(x))$  and  $g(f(x))$ , identifying the domain of the composition and evaluating the composite function
  - m. given an equation defining a relation, write an equation of the inverse relation
  - n. given a graph of a relation or function, sketch a graph of its reverse
  - o. use the horizontal line test to determine if a function is one-to-one and therefore has an inverse that is a function
  - p. find a formula for the inverse of a function
  - q. find  $f^{-1}(f(x))$  and  $f(f^{-1}(x))$  for any number  $x$  in the domains of the functions when the inverse of a function is also a function]

*Optional Learning Outcomes:*

- r. use a graphing utility to graph functions
- s. decompose a function as a composition of two functions

### 3. Polynomial and Rational Functions

It is expected that learners will be able to:

- a. graph quadratic functions and analyze graphs of quadratic functions identifying the vertex, line of symmetry, maximum/minimum values, and intercepts
- b. solve applied problems involving maximum and minimum function values
- c. determine the behaviour of the graphs of polynomial functions of higher degree using the leading coefficient test
- d. determine whether a function has a real zero between two real numbers
- e. recognize characteristics of the graphs of polynomial functions including real zeros,  $y$ -intercept, relative maxima and minima, domain and range
- f. divide polynomials using long division
- g. use synthetic division to divide a polynomial by  $x - r$
- h. use the remainder and factor theorems to find function values and factors of a polynomial
- i. list the possible rational zeros for a polynomial function with integer coefficients
- j. factor polynomial functions and find the zeros
- k. find a polynomial with specified zeros
- l. solve polynomial and rational inequalities

*Optional Learning Outcomes:*

- m. fit a quadratic function to data when three data points are given
- n. use a graphing utility to graph polynomial functions, determine the real zeros and estimate the relative maxima and minima of a function
- o. graph a rational function identifying all asymptotes

### 4. Exponential and Logarithmic Functions

It is expected that learners will be able to:

- a. evaluate exponential functions including functions with base  $e$

- 
- b. recognize the inverse relationship between exponential and logarithmic functions
  - c. graph exponential and logarithmic functions including transformations and analyze the graphs in terms of:  $x$  or  $y$ -intercepts, asymptotes, increasing or decreasing, domain and range

convert between exponential and logarithmic equations

find common and natural logarithms using a calculator

use basic and inverse properties of logarithms:  $\log_b b = 1$ ,  $\log_b b = 0$ ,  $\log_b b^x = x$ ,  $b^{\log_b x} = x$

use the product rule, quotient rule and power rule to expand or condense logarithmic expressions

use the change of base property to find a logarithm with base other than 10 or  $e$

solve exponential and logarithmic equations'

use exponential and logarithmic equations to model and solve real-life applications including exponential growth and decay

#### *Optional Learning Outcomes*

use a graphing utility to graph exponential and logarithmic functions

use a graphing utility to solve exponential and logarithmic functions

## **5. Trigonometric Functions**

It is expected that learners will be able to:

identify angles in standard position, positive and negative angles, coterminal angles and reference angles

convert between degree and radian measures of angles

find the length of an arc, radian measure of central angle, or radius of a circle using the formula  $s = r\theta$

identify special angles on a unit circle

determine the six trigonometric functions of an angle in standard position given a point on its terminal side

find the exact values of the trigonometric functions of special acute angles  $30^\circ$  ( $\pi/6$ ),  $45^\circ$  ( $\pi/4$ ), and  $60^\circ$  ( $\pi/3$ ) or any angles that are multiples of these special angles

graph the six trigonometric functions and state their properties

graph transformations of the sine and cosine functions and determine period, amplitude, and phase shift

recognize and use the reciprocal, quotient and Pythagorean identities

apply the sum or difference formulas and double angle formulas to find exact values and to verify trigonometric identities

recognize and use inverse trigonometric function notation

use a calculator to evaluate inverse trigonometric functions

find exact values of composite functions with inverse trigonometric functions

solve trigonometric equations over the interval  $(0, 2\pi)$

use trigonometric functions to model and solve real-life problems

use the Law of Sines and the Law of Cosines to solve oblique triangles

solve applied problems using the Law of Sines and the Law of Cosines

find the area of a triangle given the lengths of any two sides and the measure of the included angle:  $Area = 1/2bc \sin A = 1/2ac \sin B = 1/2ab \sin C$

convert between linear speed and angular speed of an object moving in circular motion using the formula  $v = r\omega$

use the graphing utility to graph trigonometric functions

use half-angle formulas to find exact values

use a graphing utility to verify or to approximate the solutions of a trigonometric equation

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## 6. Conic Sections

It is expected that learners will be able to:

- b. recognize the equations of the four basic conics: circles, ellipses, hyperbola and parabola
- c. write the standard forms of equations of circles, ellipses, and hyperbola with centre at origin and translated centre  $(h,k)$
- d. find the centre and radius of a circle, given its equation, and sketch the graph
- e. find the centre, vertices and foci of an ellipse, given its equation, and sketch the graph
- f. find the centre, vertices, foci and asymptotes of a hyperbola, given its equation, and sketch the graph
- g. find the vertex, focus and directrix of a parabola, given its equation, and sketch the graph
- h. solve nonlinear systems of equations
- i. use nonlinear systems of equations to solve applied problems

*Optional Learning Outcomes:*

- j. use a graphing utility to graph conic sections
- k. use a graphing utility to solve non linear systems

## 7. Sequences and Series

It is expected that learners will be able to:

- a. find terms of sequences given the general or  $n^{\text{th}}$  term
- b. find a formula for the general or  $n^{\text{th}}$  term of a given sequence
- c. use summation notation to write a series and evaluate a series designated in summation notation
- d. construct the terms of a sequence defined by a recursive formula
- e. recognize and write terms of arithmetic and geometric sequences
- f. use  $n^{\text{th}}$  term formulas for arithmetic and geometric sequences to find a specified term, or to find  $n$  when an  $n^{\text{th}}$  term is given
- g. find the sum of the first  $n$  terms of arithmetic and geometric sequences
- h. find the sum of an infinite geometric series, if it exists
- i. use sequences and series to model and solve real-life problems

*Optional Learning Outcomes:*

- j. use a graphing utility to find the sum of  $n$  terms of a sequence

## 8. Optional Topics

Learners may wish to complete any of the following topics but these outcomes are no required:

- A. Permutations and Combinations
  - a. evaluate factorial notation
  - b. evaluate permutation and combination notation
  - c. solve related applied problems
- B. Binomial Expansion
  - a. expand a power of a binomial using Pascal's triangle or factorial notation
  - b. find a specific term of a binomial expansion
  - c. find the total number in subsets of a set of  $n$  objects
- C. Probability
  - a. compute the probability of a simple event
  - b. distinguish between experimental and theoretical probability

- 
- D.       Calculus
- a. understand and find the limits of polynomial and rational expressions
  - find the slope of a line tangent to a curve at a point on the curve
  - determine the equation of a line tangent to a curve at a given point
  - use the definition of a derivative to find the derivative of certain polynomials
  - find derivatives using the power rule
  - use the derivative to graph and analyze functions in terms of: increasing/decreasing intervals; minimum/maximum points; concave up/concave down intervals; inflection points
  - solve applied maximum/minimum problems

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## Mathematics: Provincial Level (Calculus)

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### Goal Statement

ABE Provincial Level Calculus is designed to (1) provide students with the mathematical knowledge and skills needed for post-secondary academic and career programs and (2) ease the transition from Provincial level Mathematics to first year calculus at college/university.

#### 1.       Prelude to Calculus

It is expected that learners will be able to:

- a. demonstrate an understanding of the concept of the limit and notation used in expressing the limit of a function
- b. evaluate the limit of a function analytically, graphically and numerically
- c. distinguish between the limit of a function as  $x$  approaches  $a$  and the value of the function at  $x = a$ .
- d. demonstrate an understanding of the concept of one and two-sided limits.
- e. evaluate limits at infinity
- f. determine vertical and horizontal asymptotes using limits
- h. determine continuity of functions at a point  $x = a$
- i. determine discontinuities and removable discontinuities
- j. determine continuity of polynomial, rational, and composite functions

*Optional Outcomes:*

- j. determine continuity of trigonometric functions
- k. determine limits of trigonometric functions

#### 2.       The Derivative

It is expected that learners will be able to:

- a. define and evaluate the derivative at  $x = a$  as:  $f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$
- b. distinguish between continuity and differentiability of a function
- c. determine the slope of a tangent line to a curve at a given point
- d. calculate derivatives of elementary, rational and algebraic functions
- e. distinguish between rate of change and instantaneous rate of change
- f. apply differentiation rules to applied problems
- g. use Chain Rule to compute derivatives of composite functions
- h. solve rate of change application problems
- i. determine local and global extreme values of a function
- j. solve applied optimization (max/min) problems

*Optional Outcomes:*

- k. calculate derivatives of trigonometric functions and their inverses
- l. calculate derivatives of exponential and logarithmic functions
- m. use logarithmic differentiation

- 
- n. calculate derivatives of functions defined implicitly
  - o. solve related rates problems
  - p. use Newton's Method

### 3. Applications of the Derivative

It is expected that learners will be able to:

- a. determine critical numbers and inflection points of a function
- b. compute differentials
- c. use the First and Second Derivative Tests to sketch graphs of functions
- d. use concavity and asymptotes to sketch graphs of functions

*Optional Outcomes:*

- e. differentiate implicitly
- f. understand and use the Mean Value Theorem
- g. apply L'Hopital's Rule to study the behaviour of functions

### 4. Antiderivatives

It is expected that learners will be able to:

- a. compute antiderivatives of linear combinations of functions
- b. use antidifferentiation to solve rectilinear motion problems
- c. use antidifferentiation to find the area under a curve
- d. evaluate integrals using integral tables and substitutions

*Optional Outcomes:*

- e. use antidifferentiation to find the area between two curves
- f. compute Riemann sums
- g. apply the Trapezoidal Rule
- h. solve initial value problems

**Optional Outcomes:**

### 5. Differential Equations

It is expected that learners will be able to:

- a. derive a general solution of differential equations and find a particular solution satisfying initial conditions
- b. derive differential equations that explain mathematical models in the applied sciences

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## **SCIENCES: GENERAL and APPLIED SCIENCE**

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Adult Education in the natural sciences recognizes the worth of adult experience and the desire to further understand the world around us, ourselves, and our relationship to the natural world. General Science programs can best promote such understanding by offering courses that provide opportunities for students:

- A. to develop critical thinking skills;
- B. to increase their understanding of the concepts and principles of science;
- C. to recognize the uses and limitations of scientific methods;
- D. to acquire the skills and understand the processes and applications of science.

An applied science course will stress the practical applications of scientific concepts and skills, enabling adult learners to pursue further education, training, and/or employment opportunities.

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### **General and Applied Science: Intermediate Level**

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#### **Learning Outcomes**

The learner will be able to:

- Understand and gain an appreciation for the methods by which scientific knowledge is obtained and organized, so that the learner can apply these methods of problem solving to everyday life.
- Understand the fundamental concepts and terminology from the three primary branches of science: biology, chemistry, and physics. Some learners may also study other branches of science such as astronomy, geology, or meteorology. The exposure to these subject areas should show the variation, diversity and similarities between all branches of science as well as illustrate the effects of science in the learner's everyday life.
- Understand the methodology of a controlled experiment, and the necessity of performing experiments in order to acquire scientific knowledge.

The course is not limited to units in biology, chemistry and physics, but may be expanded to suit individual or local needs. No time allotments have been suggested, but it is assumed that the average completion time for Intermediate Science will be similar to that for the same level subjects in English and Mathematics.

#### **Generic Topic Outline**

At least five units are required, but additional units may be added as desired. The following are outlines of content of suitable units.

##### **A. Introductory Science**

- Define science and its limits
- Explain and use the scientific method
- Demonstrate the skills and techniques of science. (experimental design, use of tables, graphs and calculations)
- Use appropriate instruments to make measurements
- Solve problems using SI units
- Relate Science and Technology to our modern world

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## B. Human Biology

Explain the importance of and inter-dependence between biological systems as covered in one of the following units:

1. Nutrition
  - Describe the energy needs of the body
  - Identify nutrients needed by the body
  - Plan a healthy diet
  - Identify special foods and diets
  - Describe worldwide food needs
  
2. Human Biology
  - Identify the parts of the skeletal and muscular systems
  - Explain the function of blood and trace its circulation
  - Identify the parts and functions of the respiratory system
  - Describe the digestive system and the function of the digestive organs
  - Identify the parts of the nervous system

(This topic may be substituted for one of the above: identify and explain the reproductive system)
  
3. The Cell
  - Identify the parts of the microscope and demonstrate its use.
  - Explain the theory, structure and function of the cell
  - Describe cellular processes
  - Define cell division
  - Diagram cell organization

## C. Chemistry

- To acquire a general understanding of the structure of matter and the organization of the Periodic Table.
- Describe the different states of matter
- Describe how matter is organized into elements, compounds and mixtures.
- Identify the subatomic components of atoms
- Use the periodic table to determine the properties of elements and their characteristic behaviours
- Describe the organization of the periodic table
- Categorize compounds as ionic or covalent
- Name a simple compounds from its formula
- Write the formula for a simple compound

## D. Physics

Do one of the following:

1. Machines
  - Define force and work
  - Apply the concept of work to simple machines to solve quantitative problems
  - Solve problems involving simple machines, levers, inclined planes, wedges, pulleys, wheels and axles
  - Solve problems involving other machines: gears, pulley systems, hydraulic systems

- 
2. Energy
    - Define basic concepts: force, work, energy, conservation law, power
    - Distinguish between forms of energy
    - Solve quantitative problems involving thermal energy
    - Solve quantitative problems involving electrical energy
    - Solve quantitative problems involving conservation of energy
  
  3. Electrical Circuits
    - Distinguish between AC and DC circuits
    - Choose and use appropriate instruments to measure voltage and current
    - Solve quantitative problems involving Ohm's Law
    - Solve quantitative problems involving circuits
    - Explain the use of switches, fuses, and other components of an electrical circuit
    - Demonstrate appropriate safety precautions
  
  4. Motion in one dimension
    - Solve quantitative problems involving velocity
    - Solve quantitative problems involving acceleration

#### **E. The fifth unit**

May be chosen from the above or from other topics such as disease, drugs, chemical reactions and equations, weather, astronomy, earth science, environmental issues, etc.

All Intermediate General Science courses must include experiment and/or field time of at least 10% of the total time. Experiment and/or field exercises should be relevant to the selected units and emphasize those techniques and skills appropriate for this level of course.

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### **General and Applied Science: Advanced Level**

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Adult learners will demonstrate their knowledge, skill and understanding of science at an Advanced Level. (For outcomes at an Advanced level see the relevant outcomes for specific sciences in this guide.) This material may be organized around a central unifying theme.

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### **General and Applied Science: Provincial Level**

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Adult learners will demonstrate their knowledge, skill and understanding of science at a Provincial Level. Courses will include provincial level material from one or more of Biology, Chemistry, Physics or Earth Sciences. (For outcomes at a Provincial level in these sciences see the relevant outcomes in this guide.) This material may be organized around a central unifying theme.



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# **SCIENCES: BIOLOGY**

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## **Goal Statement**

Biology is the study of living organisms and life processes. In the study of biology, adult learners can use their life experiences to expand their knowledge of both the macro and micro environments, their appreciation of the living world's natural order and their role in it.

The Biology Advanced Level Integrated Resource Package developed by the Centre for Curriculum, Transfer and Technology is suggested as an excellent resource for this course.

## **Learning Outcomes**

Biology learners will:

- Obtain the prerequisite body of knowledge and skills that will provide a basis for further academic and career/ vocational education and training
- Appreciate the qualities, the quantities and the variety of living organisms, and understand their impact on human lives, society, and the environment
- Use scientific method to evaluate information and to analyze experiences
- Communicate science effectively
- Work independently and also as part of a team, where appropriate
- Read and evaluate popular publications about issues in the life sciences with increased understanding and interest
- Actively gain the knowledge, skills, and attitudes that provide the basis for sound and ethical problem solving and decision making
- Make informed and responsible decisions about themselves, their homes, workplaces, and the global community

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## **Biology: Advanced Level**

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### **Core Topics**

#### **A. Apply Scientific Method**

#### **B. Describe major function and structures of cells and related chemistry**

#### **C. Diversity of Life**

Identify major taxonomic groups

Demonstrate an understanding of classification

For viruses, monera, protists, fungi, major divisions of plants, major invertebrate phyla and major vertebrate phyla it is expected that students are able to do the following:

- Identify structure
- Identify distinguishing characteristics
- Describe life processes
- Relate adaptation to their role in the ecosystem

#### **D. Ecology**

- Describe energy transfer for food chains, food webs, energy pyramids and biogeochemical materials cycles
- Define communities and population & explain their distribution, dynamic and changes over time
- Define biosphere and characterize aquatic and terrestrial biomes using British Columbia examples
- Identify ecological problems and evaluate possible solutions

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### **E. Evolution**

- Cite evidence for evolution
- Compare past and present theories of evolution
- Discuss the origin of life

### **F. Options**

The following topics may be useful to students going off to further biology courses:

- Resource management
- Applied ecology
- Ecological methods
- Behaviour
- Genetics
- Parasitology
- Local topics

### **G. Laboratory Skills**

- Demonstrate microscope skills
- Collect and record data in an effective manner
- Conduct lab procedures safely and ethically
- Interpret data collected

All Advanced Biology courses must include seven laboratory and/or fieldwork activities.

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## **Biology: Provincial Level**

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### **Human Biology:**

#### **Core Topics**

##### **A. Cell Biology**

- Describe major structures and functions
- Explain the role of important molecules: water, carbohydrates, proteins, lipids, nucleic acids, etc.
- Describe the basic mechanism of protein synthesis.
- Explain the role of enzymes and their importance to cellular processes.
- Explain and compare mitosis and meiosis.

##### **B. Bioenergetics**

Outline the processes of photosynthesis and cellular respiration and their relationship to one another.

##### **C. Genetics**

Explain principles of inheritance  
Solve problems in Mendelian Genetics  
Explain role of DNA

##### **D. Human Biology**

- Apply concept of homeostasis
- Demonstrate knowledge of integration of tissues, organs and systems
- Identify structures and describe functions of eight of the following:
  - skeleto-muscular system
  - digestive system
  - circulatory system
  - blood and immunity
  - respiratory system
  - endocrine system
  - nervous and sensory system
  - excretory system

- 
- reproductive system
  - human development

### Options

The following topics may be useful to students taking further biology courses:

- Cancer
- Nutrition
- Plant form and function
- Local topics

### Laboratory Skills

- Demonstrate microscope skills
- Collect and record data in an effective manner
- Conduct lab procedures safely and ethically
- Interpret data collected

All Provincial Biology courses must include seven laboratory and/or fieldwork activities.

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## Biology: Provincial Level

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### Ecology:

### Core Topics

#### A. Cell Biology

- Describe major structures and functions
- Explain the role of important molecules: water, carbohydrates, proteins, lipids, nucleic acids, etc.
- Describe the basic mechanism of protein synthesis.
- Explain the role of enzymes and their importance to cellular processes.
- Explain and compare mitosis and meiosis.

#### B. Bioenergetics

- Outline the processes of photosynthesis and cellular respiration and their relationship to one another.

#### C. Plant anatomy and physiology

- Describe the major plant tissue types and their function
- Describe the function of plant control and reproductive systems

#### D. Animal Anatomy and Physiology

- Apply concept of homeostasis
- Demonstrate knowledge of integration of tissues, organs and systems
- Identify structures and describe the functions of the following systems:
  - Respiratory
  - Circulatory
  - Muscular, Skeletal
  - Reproductive
  - Nervous and Sensory

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## **E. Ecology**

- Use fundamentals of classification to identify organisms.
- Explain how plant and animal diversity enable them to adapt to their environments.
- Explain the principles of population dynamics: population growth, density, distribution, and regularity.
- Explain ecosystem dynamics: energy flow, nutrient cycling.
- Explain community dynamics including: community structure, diversity, and interspecific relationships
- Demonstrate knowledge of the challenges to biome integrity

## **Laboratory Skills**

- Demonstrate microscope skills
- Collect and record data in an effective manner
- Conduct lab procedures safely and ethically
- Interpret data collected

All Provincial Biology courses must include seven laboratory and/or fieldwork activities.

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# SCIENCES: CHEMISTRY

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## Goal Statement

Chemistry is an essential part of the everyday world. A knowledge and understanding of its principles is the base on which applications in health, the environment, and industrial development are founded. The chemistry courses will foster understanding of science as a vital part of a sustainable society and provide a basis for further academic and career/vocational training.

An Integrated Resource Package, containing learning outcomes, suggested instructional and assessment strategies and suggested resources, has been developed for use in Advanced Level Chemistry.

## Learning Outcomes

Chemistry learners will:

- Obtain the prerequisite body of knowledge and skills that will provide a basis for further academic and career/ vocational training
- Appreciate and apply the chemistry of everyday life
- Apply the scientific method to investigations of all phenomena
- Communicate effectively, particularly to the scientific community, using the language of chemistry
- Carry out all duties in an ethical, professional manner, including the collection and treatment of data
- Work effectively as a member of a team
- Handle equipment and chemicals in a safe and effective manner with regard to their own safety and the safety of others

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## Chemistry: Advanced Level

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### Core Topics

#### A. Safety

- List the safety and protective equipment available in the laboratory
- Demonstrate the appropriate procedures or techniques for dealing with particular hazards and hazardous materials

#### B. Measurement

- Demonstrate the concepts of precision and accuracy and how they differ, utilizing significant figures
- Perform calculations using scientific notation
- Perform conversions within the SI system

#### C. Properties of Substances

- Classify substances as organic or inorganic
- Differentiate between the phases of matter
- Identify chemical or physical properties of substances
- Describe Dalton's Atomic Theory and the Law of Constant Composition

#### D. Periodic Trends

- Use the periodic table to determine atomic composition of isotopes
- Use the periodic table to predict electron arrangement of chemical families in order to predict trends in ion charge, reactivity, ionization energy, electronegativity, atomic radii, and ionic radii

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**E. Atomic Structure**

- Analyze the historical development of atomic theory
- Describe the Bohr and Wave Mechanical model of the atom and cite evidence for these models including absorption and emission spectra and their use in modern technology

**F. Mole Concept**

- Define a mole and its significance
- Perform calculations including molar and formula mass, mole to mass conversions, and percent composition by mass of compounds

**G. Bonding**

Define covalent and ionic bonding  
Construct the formulas of compounds  
Use electronegativity to predict bond types  
Lewis structures and polarity

**H. Nomenclature**

Write names for compounds given the formulae and write formulae for compounds given the names for the following types of compounds:

- Organic compounds and functional groups
- Covalent compounds
- Ionic compounds
- Compounds containing polyatomic ions
- Compounds containing transition metals
- Acids

**I. Chemical Reactions**

- Balance equations
- Classify and predict single and double replacement reactions, combustion reactions, and acid-base neutralizations
- Classify synthesis, decomposition, exothermic and endothermic reactions
- Perform stoichiometric calculations including mass-to-mass, limiting reagent, and percent yield

**J. Solutions**

Predict solubility and conductivity of polar and non-polar compounds  
Define Arrhenius acids and bases  
Relate the pH scale to acids and bases  
Perform calculations involving dilutions  
Perform stoichiometric calculations involving solutions including titrations

**Options**

Options may include additional organic chemistry.

**Laboratories**

A minimum of eight labs are to be completed, covering the core concepts

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## **Chemistry: Provincial Level**

### **Core Topics**

#### **A. Reaction Kinetics**

- Describe the collision model of chemical reactions
- Describe activation energy, endo and exothermic reactions using potential and kinetic energy diagrams
- Describe the factors that effect reaction rate including temperature, concentration, surface area, and catalysts

#### **B. Equilibrium**

- Explain the nature of chemical equilibrium using examples
- Apply Le Chatelier's Principle
- Calculate equilibrium constants of homogenous and heterogeneous systems and equilibrium concentrations from equilibrium constants

#### **C. Acid-Base**

- Describe Bronsted-Lowry acids and bases including acid-bases pairs
- Predict the relative strengths of acids
- Calculate  $[H^+]$ ,  $[OH^-]$ , pH, and pOH from any one known
- Calculate pH from  $K_a$
- Describe the characteristics of a buffer system

#### **D. Oxidation-Reduction**

- Assign oxidation states to elements in compounds
- Identify oxidizing and reducing agents
- Balance redox equations
- Describe the components of electrochemical and electrolytic cells
- Predict the voltage,  $E_o$ , of electrochemical and electrolytic cells
- Describe the applications of oxidation-reduction to everyday and industrial processes

#### **E. Gas Laws**

Use the appropriate units and conversions for pressure, volume and temperature  
Apply Boyle's, Charles', Guy-Lussac's and the Combined Gas Laws to predict pressure, volume, or temperature  
Describe an ideal gas and make calculations using the Ideal Gas Law

#### **F. Organic Chemistry**

- Draw structural formulae of hydrocarbons and substituted hydrocarbons and name them using IUPAC (International Union of Pure and Applied Chemists)
- Identify structural isomers
- Categorize organic compounds based on their functional groups
- Describe applications of organic chemistry

#### **Options**

Options may include: nuclear chemistry, biochemistry, advanced work on bonding, solubility of ionic substances, or industrial applications

#### **Laboratories**

A minimum of eight labs are to be completed, covering the core concepts

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# SCIENCES: PHYSICS

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## Goal Statement

Since Physics is the study of the fundamental laws of nature, it is relevant to a wide range of human concerns and achievements. Technological change, which stems from an understanding of physics, is often accompanied by extensive social change, to which each of us must adapt. Moreover, the concepts of physics have profound effects on the way we think about the universe, our societies, our work and ourselves. At the most immediate level, physics is essential to academic studies and career training in a wide range of fields.

Advanced and Provincial Level Physics should therefore aim to foster and develop, as part of general education, a scientific way of thinking and a basic knowledge of scientific ideas. The courses should also nurture an understanding of science as an integral part of society's culture and provide groundwork for further academic, career, or vocational training.

An Integrated Resource Package, containing learning outcomes, suggested instructional and assessment strategies and suggested resources, has been developed for use in Advanced Level Physics.

## Learning Outcomes

Physics learners will:

- Obtain the pre-requisite body of knowledge and skills that will provide a basis for further academic and career/ vocational training
- Use scientific processes in an ethical and appropriate manner
- Appreciate and apply the physics of everyday phenomena
- Link physics to their own practical experience
- Work effectively as a member of a team in a responsible and respectful manner
- Handle equipment and lab materials in a responsible and effective manner with regard to their own safety and the safety of others
- Apply scientific concepts, recognizing their strengths and weaknesses, to broader societal issues
- Critically evaluate controversial points of view around issues where science offers information or perspective
- Develop critical thinking skills

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## Physics: Advanced Level

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### Core topics

#### A. Measurement

- solve problems involving SI units
- maintain the correct number of significant numbers in calculations
- use uncertainties in measurements

#### B. Kinematics

- solve and analyze kinematics in one dimension
- construct and use distance versus time curves
- construct and use velocity versus time curves
- solve problems involving uniform acceleration



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### C. Dynamics

- solve and analyze dynamics in one dimension
- apply Newton's laws of motion in one dimension
- solve problems involving:
  - friction forces
  - gravity forces
  - elastic forces
- solve and analyze problems in kinetic and potential energy
- solve and analyze problems in energy conservation
- solve problems involving work and power

### D. Electricity

- solve and analyze problems involving Coulomb's law
- solve and analyze problems involving Ohm's law
- define electric potential difference
- solve simple D.C. resistance problems involving series and parallel circuits

### E. Heat

- define temperature, heat energy and specific heat capacity
- solve and analyze problems in heat energy
- demonstrate an understanding of the different mechanisms of heat transfer

### Options:

The following topics may be useful to students going on to further physics courses:

- wave phenomena applied to light and sound
- atomic and nuclear physics

### Laboratories:

There should be one laboratory from each topic and a minimum of seven laboratories. Laboratory skills must include:

- collecting data through observation
- constructing graphs
- drawing conclusions from observations and data
- calculating experimental error

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## Physics: Provincial Level

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### Core topics

#### A. Kinematics

- solve and analyze kinematics in two dimensions

#### B. Dynamics

- solve and analyze dynamics in two dimensions
  - two-dimensional equilibrium
  - momentum in two dimensions
  - energy conservation
  - circular motion

#### C. Electrostatics

- do calculations with electric field strength
- do calculations with electric potential energy

#### D. Electromagnetism

- do problems involving magnetic forces

- 
- analyze and solve problems involving magnetic induction

### **E. Vibrations and Waves**

- define wave length, frequency and period
- analyze and solve problems involving wave phenomena
- describe various wave phenomena and the conditions which produce them
- construct ray diagrams for mirrors and simple lenses

### **Options:**

The following topics may be useful to students going on to further physics courses:

- AC circuits
- relativity
- quantum mechanics
- electronics
- fluids

### **Laboratories:**

There should be one laboratory from each topic and a minimum of seven laboratories.

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# **SOCIAL SCIENCE**

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## **General Statement**

The ABE Social Science curriculum provides an analytic and critical approach to social science topics. The overall purpose is to encourage learners to explore society from many perspectives. ABE Social Science provides learners with a variety of conceptual tools to analyze and assess these perspectives. It allows learners to assemble these perspectives and articulate a point of view. Finally, it enables learners to revise their points of view through experiencing the different values and cultures of other people.

An integrated resource package containing learning outcomes, instructional and assessment strategies and resources has been developed for use in Social Science instruction.

## **Goal Statement**

The goals of the curriculum are broadly applicable to all levels, Fundamental through Provincial. Learners will:

1. Become aware of some past and present forces shaping society
2. Experience different perspectives on these shaping forces: cultural, economic, gender, geographic, historic, legal, political, psychological, racial, spiritual, etc.
3. Analyze and assess these issue perspectives to build a point of view
4. Revise their point of view through experiencing other social and cultural perspectives

## **Outcomes**

Participants in **all** Social Science courses should be encouraged to acquire a range of skills and abilities. The skills and abilities listed here apply in general to **all** levels, Fundamental through Provincial, with the recognition that particular outcomes may be more or less applicable at each level. In addition, there is a second list of outcomes that are required of all Provincial level courses and students.

It is expected that Social Science students will:

1. Identify sources of information from:
  - Libraries by using resource books, texts and periodicals
  - Media sources by using computers, video and audio materials
  - Direct sources such as interviews, surveys and observation
2. Extract, summarize and report information from a variety of media, such as:
  - Regional, national and global maps
  - Details of latitude and longitude, scale and distance
  - Contour and relief maps
  - Artifacts and documents
  - Historical and contemporary media, art, literature, cartoons, etc.
  - Electronic media: Internet resources, software
3. Learn to organize information into a range of formats, such as:
  - Notes, outlines, and reviews
  - Maps, graphs, and tables
  - Research summaries
4. Analyze information in a variety of ways by:
  - Finding main ideas
  - Asking evocative questions
  - Comparing main ideas with other material and sources of information
5. Demonstrate the ability to communicate through a variety of methods by:

- 
- Writing summaries
  - Preparing short essays and papers
  - Utilizing a variety of presentation methods (e.g. graphs, tables, tapes, drawings, posters, computer-based presentations, etc.)
6. Clarify and discuss personal values with respect to social issues.
  7. Identify avenues for democratic participation.
  8. Channel and clarify personal values and positions in society.
  9. Recognize and respect the right of others to hold personal values and positions.
  10. Establish hypotheses concerning values and bias.
  11. Distinguish between fact and opinion.
  12. Display skills at handling content. Students should be conversant with the subject matter of the course; specifically they should:
    - Demonstrate knowledge of the materials
    - Demonstrate the ability to comment on and question the material
    - Identify statements that reflect consistent or contradictory views
    - Demonstrate the ability to generate inferences from many sources

## **Provincial Outcomes**

In addition to the generic outcomes for all Social Science students, Provincial level students are expected to be able to:

1. Establish and test hypotheses concerning values
2. Extrapolate a common theme from disparate information
3. Produce research using MLA/APA standards
4. Write essays that demonstrate a synthesis of complex information
5. Interpret and evaluate information from artifacts, oral tradition, original documents and other primary sources
6. Generate a personal point of view about some aspect of society based on their research
7. Create or apply strategies to compare aspects of society

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## **Social Science: Intermediate Level**

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### **Generic Topic Outline**

- Canadian History
- Cultural Diversity
- Canadian Government, Law and Citizenship
- Economics and People

### **A. Canadian History**

Pre-contact:

- Indigenous People
- Explorers

Post-contact:

1. French and British Foundations in Canada
  - establishments of New France
  - expansion of the fur trade

- 
- struggle for control
2. Development of the British North American Colonies
    - opening of the West
    - conflict with the Americans
    - advancement of self government - Confederation of Canada
  3. Creating a New Nation
    - transcontinental expansion
    - struggle for national unity
    - growth of Canadian autonomy
  4. Canada at war
    - World War I
    - Inter-war period
    - World War II
  5. Postwar Canada
    - political change
    - social change
    - economic change

## **B. Cultural Diversity**

1. Idea of Culture
2. Aboriginal Culture
  - history and its effects on aboriginal peoples
  - define aboriginal culture
  - reserves - origins and impact
  - government policies and their effect on aboriginal peoples
  - contemporary issues:
    - a) aboriginal land claims
    - b) aboriginal self-government
3. Immigration - Past and Present
  - settlement patterns
  - economic and other consequences
4. Examine the concept of diversity
  - problems and accomplishments of different ethnic groups
  - cultural differences - regional and national
  - bilingualism
  - aspects of multiculturalism and diversity with focus on concepts and issues such as:
    - a) racism
    - b) role of women
    - c) assimilation/integration/cultural mosaic

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## **C. Canadian Government, Law and Citizenship**

### **1. Government**

- idea of Government
  - a) purposes
  - b) political ideologies
- Canada's Constitution
  - a) evolution
  - b) division of powers
  - c) Charter of Rights
- levels of Government
  - a) Federal
    - i) Executive, Legislative and Judicial branches
    - ii) political parties
    - iii) electoral process
    - iv) financial responsibilities
    - v) service/program responsibilities
  - b) Provincial - same subdivisions as for Federal Government
  - c) Territorial - same subdivisions as for Federal Government
  - d) Municipal - same subdivisions as for Federal Government

### **2. Law**

- Criminal
- Civil
- Court System
  - a) Federal
  - b) Provincial
  - c) Municipal

### **3. Citizenship**

- idea of Citizenship
- roles, rights and responsibilities

## **D. Economics and People**

### **1. The Idea of Economics**

- historical overview
- factors in economics such as:
  - a) capital
  - b) labour
  - c) technology
  - d) transport
  - e) resources
  - f) energy
  - g) management
  - h) social-political factors that affect development (isms and public policy)
  - i) supply and demands
  - j) cycles
  - k) family and individual

### **2. Employment/Unemployment**

- application of economic factors listed above
- job search and understanding of the labour market

### **3. Community-based and Local Economic Development**

- small business & entrepreneurship
- co-ops and credit unions
- community-based and local non-traditional economics (barter, worker co-ops, etc.)

- 
4. Regional Unit
    - application of economic factors listed above to local economies.
  5. Consumer Rights and Responsibilities
  6. Issues in Economics such as:
    - a) who plans the economy?
    - b) taxation and government spending
    - c) free trade
    - d) consumer society

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## **Social Science: Advanced Level**

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### **Generic Topic Outline**

- A. People and their Environment
  - energy use and abuse
  - food production
  - quality of life
  - industrialization
- B. Global Citizenship
  - geopolitics
  - migrations
  - population studies
  - energy use and abuse
- C. Levels of Economic Development
  - food production
  - energy use and abuse
  - industrialization
  - economic systems
- D. Locally Developed Unit
  - anthropology
  - sociology
  - history
  - geography
  - psychology

### **Psychology - Generic Topic Outline**

- A. Relationships
- B. Human Development
- C. Culture
- D. Self Esteem
- E. Group Dynamics
- F. Conflict Resolution
- G. Decision Making/Problem Solving
- H. Assertiveness
- I. Fields of Psychology
- J. Communication
- K. Perception
- L. Health and Wellness
- M. Definitions

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The above list of topics is intended to reflect an applied approach to psychology at the advanced level. A list of applied interest areas for each topic will be developed by the working committee to further expand psychology at the advanced level.

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## **Social Science: Provincial Level**

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### **Geography - Generic Topic Outline**

The focus is on Physical and Human Geography.

#### **A. Meteorology & Climatologic**

earth and sun relationships  
atmosphere, structure and composition  
insolation and temperature  
atmospheric pressure and winds  
moisture, humidity and precipitation  
mapping weather

#### **B. Geomorphology**

rocks  
tectonic forces  
gradational forces  
weathering processes  
landforms  
geophysical hazards

#### **C. Cartography**

types of maps  
scale  
grids

#### **D. Demography**

distribution and density  
population growth and control  
population and food consumption  
migration

#### **E. Resources**

renewable/non renewable  
energy types

### **History - Generic Topic Outline**

The focus is on 20th Century World History.

#### **A. The World at the Beginning of the Century**

nationalism and imperialism  
causes and course of the war  
Russian War and Revolution

#### **B. The World after World War I**

- Treaty of Versailles and League of Nations
- Germany and war reparations
- Japanese imperialism
- Europe and North America in the 20s



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### **C. The World in the 30s: Depression & Dictatorship**

the Great Depression - causes & consequences  
the Rise of Hitler's Germany  
Roosevelt and the New Deal  
Stalin's rise to power and modernization of Russia

### **D. World War II**

origins  
causes  
events

### **E. The Cold War and Reconstruction**

two Germanys  
the Iron Curtain  
confrontation or coexistence  
Western Europe: towards New Community  
emerging Asian economies

### **F. The Third World and China**

Mao's China 1949-76  
end of European empires and the advent of new imperialism  
the Middle East

### **G. Contemporary Issues**

## **Economics - Generic Topic Outline**

The focus is on providing an introduction to some of the basic concepts of economics.

### **A. Introduction**

- origins and history of economics
- terminology
- definitions of economic terms
- scarcity
- modern economic systems and their evolution - communism, socialism, capitalism, fascism

### **B. Production**

- explanation of production
- factors of production (land, labour, capital, entrepreneur)
- organizations of production (single ownership, partnership, corporation, state ownership, cooperatives)
- large-scale production - advantages and disadvantages
- monopoly - an assessment of its various forms (pool, holding company, merger) and its growth

### **C. Exchange**

the price system  
money  
credit and banking  
marketing and transportation  
international trade and foreign exchange

### **D. Distribution**

- elements of distribution, such as:
  - a. national income
  - b. wage determination
  - c. interest and savings

- 
- d. interest rates
  - e. profits
  - the Labour Movement (history and development)
  - labour problems
  - labour legislation
    - a. collective bargaining
    - b. contracts
    - c. the right to strike
    - d. strike alternatives, labour laws

#### **E. Consumption of Goods**

- principles of consumption
- saving and investing

#### **F. The Role of Government**

- federal, provincial and municipal expenditures
- increasing public expenditures
  - a. social services
  - b. national defence
  - c. crown corporations
  - d. debts - national and provincial
- sources of government revenue
  - a. advantages and disadvantages of various types of taxation
  - b. federal taxation
  - c. provincial taxation
  - d. municipal taxation

#### **G. Economics and Business**

- the balance sheet (assets and liabilities)
- costs and cost control
- reasons for business failure

#### **H. Current Events**

- domestic issues (issues of local and national concern)
- international issues

### **Psychology - Generic Topic Outline**

The focus is on providing an introduction to some of the basic concepts and applications in psychology.

#### **A. Introduction**

- Origins and history of psychology
- Terminology
- Methodology

#### **B. Theoretical Approaches**

- Psychoanalytic
- Behavioural/cognitive
  
- Human potential
- Others

#### **C. Developmental Psychology**

- Stages of life
- Sex and gender

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**D. Learning**

- Definitions
- Theories
- Learning styles
- Thinking

**E. Communication**

- Theory
- Non-verbal
- Aggressive/assertion
- Conflict
- Listening skills
- Gender differences

**F. Stress and Wellness**

- Definitions
- Theories
- Strategies
- Personality

**G. Other Possible Topics**

- Abnormal psychology
- Physiology
- Ethics
- Motivation
- etc.

**H. Applications**

- Addictions
- Family
- Parenting
- Anger management
- Personal development
- Abuse

**Directions to Future Submitters of Courses Under the Social Science Section**

Please submit course proposals to the chair of the committee at least one month prior to the annual meeting. If this is not possible, contact the chair. Please ensure that the course proposals reflect the goal statements, competencies and generic skills as outlined in the Articulation Handbook.

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# COMMITTEE MEMBERSHIP

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## STEERING COMMITTEE

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The Steering Committee is made up of institutional representatives. Chairs of the articulation working sub-committees also attend. Where two names are listed for an institution, the first person named is the institutional representative. The latter exercises the institutional vote.

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## HIGHLIGHTS of the History of Adult Basic Education in British Columbia

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Since the early 1960s, British Columbians have had a rich history of Adult Basic Education (ABE) courses and programs. These courses have been and continue to be offered both in the Post-Secondary Education (PSE) system and through the Ministry of Education (MEd).<sup>1</sup> In both systems, ABE programs are offered in a variety of settings and with a variety of delivery methods. In the K-12 system (MEd), almost every school district offers ABE programs where adult learners may finish the courses necessary to receive their regular Dogwood diploma, or may complete a reduced number of credits, opt out of provincial exams, and work toward their British Columbia Adult Graduation Diploma (BCAGD).

In the PSE system, ABE programs are offered through 5 university colleges, 11 colleges, 2 institutes and the Open Learning Agency in a variety of formats ranging from semester classes to self-paced individualized instruction, including distance education and community outreach with tutoring assistance. Programs are fully articulated, allowing for course transferability around the province. Adult learners may choose to take courses as prerequisites for other programs in PSE or work toward their BCAGD.

The PSE's ABE history begins in 1960 when the federal government expands its vocational programs by passing the *Technical and Vocational Training Assistance Act*. Soon thereafter, in 1963, the province's *Public Schools Act* is amended to provide for the establishment of "regional colleges". By 1967, recognizing that most people in need of vocational training did not have the basic academic skills needed to participate in vocational programs, the federal government introduces its *Adult Occupational Training Act*; therefore, it launched the program *Basic Training for Skills Development* (BTSD) intended to provide upgrading for grades 0-12. In 1973, the shorter *Basic Job Readiness Training* (BJRT) program is introduced focusing on life skills, job search techniques and work experience.

By September 1976, a provincial discussion paper, *Helping to Develop a Provincial Continuing and Community Education Policy* made recommendations to MEd on continuing and community education policy. By December of that year, a Report of the *Committee on Continuing and Community Education in BC* was released which designated ABE as a "high priority special program". In 1977, the government passed the new comprehensive College and Institute Act. After a survey of current provisions for ABE, the government releases a discussion paper in 1979 and invites comments from the field. Also in 1979, the first annual meeting of the Adult Basic Education Association of BC (ABEABC) is held. This new organization, the first of its type in Canada, is comprised of instructors and community members interested in ABE and literacy. It aims to help ensure that ABE programs continue to receive the support they need and to help build the quality of the programming available.

In 1982, the government report *Ministerial Policy on the Provision of Adult Basic Education Programs including English Language Training in the Public Education System of British Columbia* states that it is the responsibility of the ministry to provide, to adult citizens and landed immigrants residing in the province, reasonable access to high quality ABE programs. It also notes that responsibility for the development, administration and delivery of ABE programs rests with the colleges, the institutes and the public schools. By 1986, the responsibility for education of all adults except those in secondary schools, the General Education Development (GED) challenge exam, and some adult English Language Training programs, is transferred to the newly created Ministry of Advanced Education (AVED) from MEd. In 1988, the Minister of Advanced Education sets up a Provincial Literacy Advisory Committee (PLAC) to advise on a literacy strategy.

As a result of the 1988 *Report of the Royal Commission on Education*, tuition fees were abolished for adult learners who had not graduated and were enrolled in MEd ABE programs. In PSE, Fundamental

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<sup>1</sup> The names and the official acronyms for the Ministries have varied during this history. For ease of recognition, the current (2002) abbreviations are used for the Ministry of Education (MEd) and the Ministry of Advanced Education (AVED) throughout this description.

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ABE becomes tuition free in 1991 as a result of the recommendations in the Provincial Literacy Advisory Committee's 1989 Report.

In 1992, *The Rivers Report* identifies difficulties in the delivery of ABE programs by two ministries and that same year, *The Faris Report* offers recommendations for overcoming those difficulties. As a result, in 1994 the government establishes the MEd/AVED Joint Committee on ABE which is to conduct a review and make recommendations on: the two systems' funding and fee structures; a common credential; records management, transferability and certificate granting; articulation of ABE courses; program quality, evaluation, and guidelines for good practice; and in addition, ensure cooperation between the two ministries on issues related to ABE.

ABE became tuition-free in the PSE system beginning July 1, 1998. The British Columbia Adult Graduation Diploma (BCAGD) became the common credential for ABE learners in September 1999. This credential allows adult learners to earn a graduation diploma with a mix of appropriate courses from either or both systems- MEd/AVED. In 2000, amendments are made to the School Act, The College and Institute Act, Institute of Technology Act, and Open Learning Agency Act to accommodate the granting of the British Columbia Adult Graduation Diploma (BCAGD). An ABE Accountability Framework and Program Quality Guidelines were also produced in 1999/2000.

In 2000/01, the ABE transitions project continues as both Ministries encourage the PSE and K-12 systems to undertake regional planning activities to improve the coordination of ABE in their respective regions. Several innovative activities take place.

The history of ABE in British Columbia reflects the efforts by ABE practitioners and the provincial government to develop two integrated systems that provide support and basic learning opportunities for adults. As a result, adults who need to upgrade their academic skills or earn a secondary-level diploma can find an appropriate program in their local university college, college or school district. New developments such as the Provincial e-merge initiative for ABE on-line delivery (2000), and the introduction of block funding in the PSE system (2002) present new challenges for ABE in the province.