Adult Basic Education:

A Guide to Upgrading in British Columbia's Public Post-Secondary Institutions

An Articulation Handbook
2014/15 Edition

Produced by the
Province of British Columbia
Ministry of Advanced Education

BRITISH COLUMBIA

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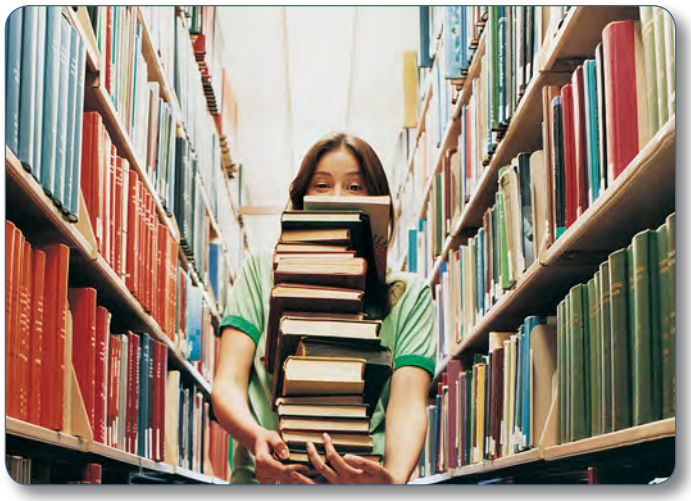
INTRODUCTION

This is the twenty-ninth edition of the Articulation Handbook for British Columbia's public post-secondary institutions. It has been updated for 2014-2015 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 students.

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

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



HISTORY OF ADULT BASIC EDUCATION IN BRITISH COLUMBIA'S PUBLIC POST-SECONDARY SYSTEM

Since the early 1960s, British Columbians have had a rich history of Adult Basic Education (ABE) courses and programs. ABE provides access to courses and skills training ranging from basic literacy through to provincial level and adult secondary school completion. ABE programs support learners to achieve one or more of the following goals: high school graduation, further education, employability skills, and life management skills. These courses are offered both in the public post-secondary institutions and British Columbia (BC) school districts. In both systems, ABE courses are offered in a variety of settings and with a variety of delivery methods.

In the school district system (K-12), adult graduation programs are offered through all 60 school districts. The focus of these adult programs is graduation, but adults can also take courses in the K-12 system to upgrade. Adult students have a choice of completing the regular BC Certificate of Graduation, or the BC Adult Graduation Diploma (BCAGD), which has the same foundational course requirements but requires fewer electives.

In the PSE system, ABE programs are delivered by 18 post-secondary institutions, and include programs focused on literacy, basic education or academic upgrading, employment preparation, English as a Second Language and Adult Special Education. These programs provide flexible learning opportunities for adult learners and are designed for the large number of British Columbians in need of basic skills or language training to participate fully in society and the economy. ABE programs in the PSE system are offered in a variety of formats ranging from semester classes to self-paced individualized instruction, including distance (online) 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 the PSE or work toward their BCAGD.

The following chronology of events highlights the development of ABE in British Columbia's public post-secondary system.

Photo courtesy of Selkirk College

Highlights of the History of Adult Basic Education in British Columbia's Public Post-Secondary System

YEAR	EVENT
1960	The federal government passed the Technical and Vocational Training Assistance Act, enabling it to partner with the provinces to fund capital costs for vocational training facilities. Many institutes of technology created through this Act were later converted to community colleges.
1963	The provincial government amended The *Public Schools Act* and established "regional colleges".
1967	The federal government introduced the *Adult Occupational Training Act* to provide short-term retraining for unemployed and underemployed workers. This program revealed that most people in need of vocational training did not have the basic academic skills needed to participate in vocational programs.
1973	The federal government funded 1) the *Basic Training and Skills Development* (BTSD) which provided upgrading for students in grades K-12 and enabled them to gain the prerequisites for vocational training, and 2) *Basic Job Readiness Training* (BJRT) programs to help adult learners, who needed more than short-term training programs, gain literacy and life skills, job search techniques and work experience leading to employment.
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. The Report of *the Committee on Continuing and Community Education in BC* highlighted ABE as a "high priority special program".
1977	The government passed the new comprehensive *College and Institute Act.*
1979	The inaugural meeting of the Adult Basic Education Association of British Columbia (ABEABC) was held. The first of its kind in Canada, ABEABC was comprised of ABE and literacy instructors and community members who wanted to help build the quality of programming available in the province.
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* stated that it was 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 noted that responsibility for the development, administration and delivery of ABE programs resided with the colleges, the institutes and the public schools.
1983	The ABE articulation process was launched in British Columbia. 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 ABE Steering Committee established working committees in each of the major discipline areas, with members from 18 colleges and the Open Learning Agency. The discipline working committees developed generic outlines and a grid of equivalencies by subject and course for the participating institutions.

YEAR	EVENT
1986	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, was transferred to the newly created Ministry of Advanced Education and Labour Market Development (ALMD) from MEd. The Ministry of Advanced Education and Job Training validated the articulation 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.
1987	The ABE Framework and Diploma were presented to the provincial universities and British Columbia Institute of Technology. These institutions recognized the Diploma as an official credential for entry into university studies.
1988	ALMD Minister established the Provincial Literacy Advisory Committee (PLAC) to develop a literacy strategy. Tuition fees were abolished for adult learners who had not graduated and were enrolled in MEd's ABE programs. This policy was one of the recommendations from the 1988 *Report of the Royal Commission on Education.*
1991	Fundamental ABE became tuition free as a result of the recommendations in the Provincial Literacy Advisory Committee's 1989 Report. The ABE Steering Committee implemented a review of the whole ABE Articulation process. This culminated in a report presented to the Steering Committee in June 1992.
1992-1995	In 1992, *The Rivers Report* identified some difficulties in the delivery of ABE programs by MEd and ALMD and that same year, The *Faris Report* offered recommendations for overcoming those difficulties. The 1993 Articulation Handbook included a revised statement on the purpose of articulation. In 1994, The government established the MEd/ALMD Joint Committee on ABE 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. 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.
1998	ABE became tuition-free in the PSE system and for online learners through LearnNowBC. The ABE Transitions Project was set up between MEd and ALMD. The overall goal of the project was to work towards a coordinated ABE system for BC 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.

YEAR	EVENT
1999	The British Columbia Adult Graduation Diploma (BCAGD) – "The Adult Dogwood"– became the common credential for ABE learners and would replace the old Adult Dogwood and the ABE Provincial Diploma. This credential allowed adult learners to earn a graduation diploma with a mix of appropriate courses from either or both systems - MEd/ALMD.
2000	Amendments were made to the *School Act, College and Institute Act, Institute of Technology Act*, and *Open Learning Agency Act* to accommodate the granting of the BCAGD. Amendments were made to the *School Act* and the *Independent School Act* to recognize the credential as well. New developments such as the Provincial "e-merge initiative" for ABE on-line delivery (2000), and the introduction of block funding (ABE funding was rolled into the block funding model) in the PSE system (2002) presented new challenges for ABE in the province.
2003	The Ministry gave public post-secondary institutions autonomy to charge tuition fees for students taking ABE courses if they already had a high school diploma. However, fundamental level ABE (literacy) programs and employment preparation programs were to remain tuition-free.
2004	The Premier's Advisory Panel on Literacy was created to assess the literacy challenges in BC, highlight the most urgent needs and develop recommendations for a provincial literacy strategy that will address those challenges.
2007	In response to the recommendations made by the Premier's Advisory Panel on Literacy, the provincial ministries encouraged the PSE and K-12 systems to work together to improve the planning and coordination of ABE and community adult literacy programs in their respective regions. In September 2007, the Province announced that all students had access to tuition-free ABE in the public post-secondary institutions beginning in January 2008.
2008	ABE courses in both the PSE and K-12 systems became tuition free for all learners, regardless of their graduation status.

THE ABE ARTICULATION PROCESS

THE PURPOSE OF ARTICULATION

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, 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

THE GOALS OF ABE ARTICULATION

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.

STEERING COMMITTEE BUSINESS

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.

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.

WORKING COMMITTEE BUSINESS: TERMS OF REFERENCE

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;
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.

List of Working Committees

Currently, there are eight working committees. They are:

- Computer Studies
- Education and Career Planning
- English
- Adult Literacy Fundamental Level
- Mathematics
- Science
- Social Science
- Indigenous ABE

ARTICULATION TASK CHECKLIST

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

I. 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.

Photo courtesy of Thompson Rivers University

4. Planning and Tracking for the BCAGD

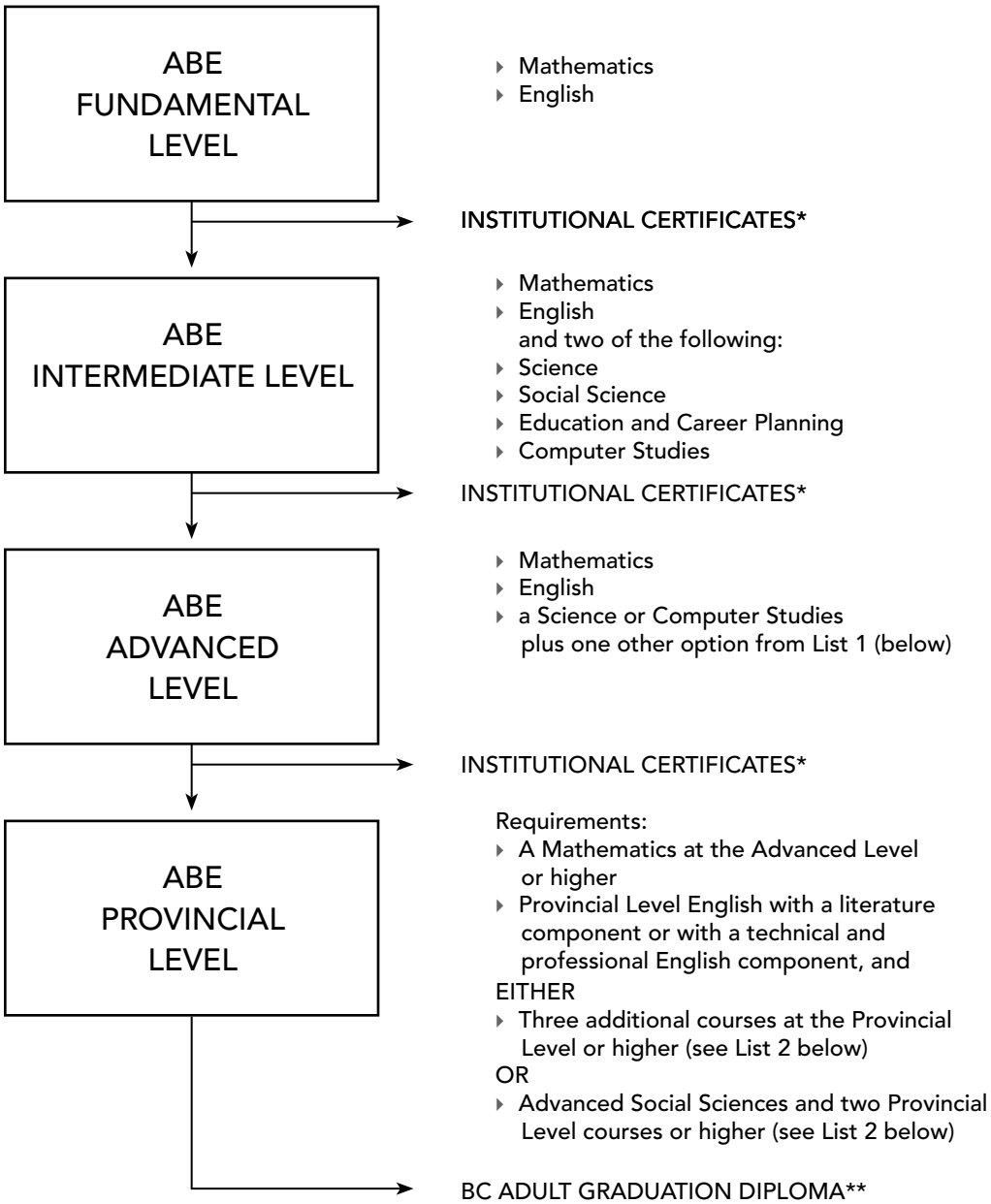
- Appropriate departments of the institution should plan to:
  - identify a list of required and elective courses at this level;
  - establish a procedure for dealing with electives;
  - ensure that students are well-advised or counseled in their course selection;
  - establish a procedure for applying 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 Housing and Social Development offices;
  - school districts;
  - aboriginal band administration officers;
  - other funding agencies.

Photo courtesy of Selkirk College

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.

** As of Sept. 1, 2000, the ABE Provincial Diploma was no longer granted. The BC Adult Graduation Diploma ("The Adult Dogwood") was 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 from this program, adult students (18 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 Advanced Social Sciences and two Provincial level courses or higher	OR	Three Grade 12 Ministry-authorized Courses (4 credits each) or Social Studies 11 (4 credits) and two Grade 12 Ministry-authorized Courses (4 credits each)	12 credits 12 credits
Total: 5 courses			**Total: 20 credits**

* 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 (BCAGD), a person must be 18 years or older.
- 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 BCAGD. 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 (MEd), or the Ministry of Advanced Education (AVED) 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 adult credential?

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

What about the regular Dogwood Diploma?

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 the same as the Adult Dogwood diploma. The Ministry of Education will discontinue the GED® program at the end of 2014. GED® testing sessions will no longer be offered after November, 2014.

When was the BC Adult Graduation Diploma (BCAGD) implemented?

The BCAGD was implemented on September 1, 1999.

Who will issue the BC Adult Graduation Diploma?

Post-secondary institutions will request the diplomas from AVED (at 250-387-6186) and issue them from the registrar's office. The BCAGD 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 takes responsibility for the student and 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, 3 courses should have been completed after turning 18 years old. A student may use Prior Learning Assessment (where available) as an adult to get credit for up to 3 courses used towards the diploma.

What if a student is missing one or two courses from his/her high school graduation?

A school-aged, non-graduated student has a five year window to complete the high school graduation program.

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

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

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 Work Experience designated courses be counted for credit towards the BCAGD?

Yes, all WEX 12A (Ministry Authorized Work Experience) or SSA 12A (Secondary School Apprenticeship) can be applied to the Adult Graduation Diploma. Students can receive Adult Graduation Program credit for both of these courses or for other WEX 12 or SSA 12 courses.

What is meant by "Three additional courses at the Provincial Level or higher"?

The Provincial level means that the course has to be articulated as an ABE Provincial Level course and be listed on a transfer grid in the ABE Articulation Handbook (either this Handbook or a previous one). A higher level course means that the course is a university transfer course and listed on the BCCAT website.

For non-academic courses, refer to List 2 on the Framework.
For the trades and other programs, courses can be used if there is a written agreement with the school, or if the course is listed in the college's calendar and is used towards a credential for a certificate, diploma or degree.

Do the three additional Post Secondary courses at the Provincial Level or higher have to be from different subject areas?

No they could all be from the same subject area.

Does an additional Post Secondary course have to be a particular length of time before it can be used towards the BCAGD?

In the case of the trades or other program courses, the course must be 100-120 hours. Courses with less than these may be 'bundled' up to equal the 100-120 hours requirement.

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

Ministry of Advanced Education:

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 the Articulation Handbook 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/

The graduation requirements are also included in the *Handbook of Procedures (Chapter 3)*
http://www.bced.gov.bc.ca/exams/handbook/

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/

CAPPA 12 is now over, but adult students can use the new Planning 12 course to replace CAPPA 12.

The books mentioned above can be purchased through Queen's Printer Publications Services, 563 Superior Street Victoria, BC, V8W 9V7 Tel 250 387-6409 Fax 250 387-1120 Toll Free 1-800-663-6105.

For the BC Post Secondary System Qualifying Courses, what courses (other than the academic ones) are eligible from List 2?

For the trades and other programs, courses can be used if there is a written agreement with the school, or if the course is listed in the college's calendar and is used towards a credential for a certificate, diploma or degree.

What English course can be used as the BC post secondary Provincial Level English?

As long as the English course has been articulated as a Provincial level English course by the ABE English Working Group and is on the ABE English transfer grid, then it can be used.

What math course can be used as the BC post secondary math towards the Adult Dogwood?

As long as the math course has been articulated as an Advanced level math course, or higher, by the ABE Mathematics Working Group and is on the ABE Mathematics transfer grid, then it can be used.

The tables below indicate which ABE post-secondary courses have been deemed equivalent (80% match of prescribed learning outcomes) to the MEd courses and which ones are external (MEd authorized for credit towards a graduation diploma). MEd course equivalency policies are outlined at the beginning of chapter 2 of the Handbook of Procedures: http://www.bced.gov.bc.ca/exams/handbook/

ABE Post-Secondary Courses Authorized as Equivalent to Ministry of Education Courses

MED COURSE CODE	ABE POST-SECONDARY COURSE TITLE	MED EQUIVALENT COURSE	CREDITS	MEETS FOUNDATION STUDIES
MATHEMATICS				
UABEM11	ABE Advanced Algebraic Mathematics (11)	Pre-Calculus 11	4	Mathematics
UABEM12	ABE Provincial Algebra and Trigonometry Mathematics (12)	Pre-Calculus 12	4	Mathematics
UABEL12	ABE Provincial Calculus (12)	Calculus 12	4	Mathematics
SCIENCE				
UABEB11	ABE Advanced Biology (11)	Biology 11	4	Science
UABEB12	ABE Provincial Biology (12)	Biology 12	4	Science
UABEH11	ABE Advanced Chemistry (11)	Chemistry 11	4	Science
UABEH12	ABE Provincial Chemistry (12)	Chemistry 12	4	Science
EDUCATION AND CAREER PLANNING				
UABER12	ABE Provincial Education and Career Planning (12)	Planning 12	4	Planning 10

ABE courses at the "advanced level or higher" taken in the post-secondary system count for external credit and can be used for the math credit in the BCAGD.

External ABE Post-Secondary Courses Authorized for **Ministry of Education Credit**

MED COURSE CODE	ABE POST-SECONDARY COURSE TITLE	MEETS FOUNDATION STUDIES	CREDITS	CREDIT RESTRICTIONS BY CODE
UABEA 11	ABE Advanced Accounting (11)	Applied Skills	4	
UABEC 11	ABE Advanced Computer Studies (11)	Applied Skills	4	
UABEC 12	ABE Provincial Computer Studies (12)	Applied Skills	4	
UABEE 11	ABE Advanced English (11)	English Language Arts 11	4	EN 11
UABEE 12	ABE Provincial English (12)	English Language Arts 12	4	EN 12
UABET11	ABE Advanced Business/Technical Mathematics (11)	Mathematics	4	
UABED11	ABE Advanced Developmental Mathematics (11)	Mathematics	4	
UABEP 11	ABE Advanced Physics (11)	Science	4	PH 11
UABEP 12	ABE Provincial Physics (12)	Science	4	PH 12
UABEG 11	ABE Advanced General and Applied Science (11)	Science	4	
UABES 11	ABE Advanced Social Studies (11)	Social Studies	4	SS 11
UABES 12	ABE Provincial Social Studies (12)		4	

N.B.: A Ministry of Education (MEd) approved External course is a MEd-authorized course. These courses are of equivalent or higher standard to other MEd-authorized senior secondary courses, but the learning outcomes differ.

RECOGNITION OF THE BC ADULT GRADUATION DIPLOMA

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

2014/15 Academic Calendar

Acceptable alternative to a high school diploma

The B.C. Adult Graduation Diploma (BCAGD) is also considered equivalent to high-school graduation.

See http://www.bcit.ca/counsellorsguide/admissionreq/ and http://www.bcit.ca/admission/requirements/

SIMON FRASER UNIVERSITY

2014/15 Academic Calendar

British Columbia 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.

If you have completed the diploma and are at least 19 years of age, you may be admitted if you 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.
- BC First Nations Studies 12, Calculus 12, Comparative Civilization 12, Economics 12, English Literature 12, Foundations of Math 12, French 12 or français langue seconde 12, German 12, History 12, Japanese 12, Law 12, Mandarin 12, Principles of Math 12 or Pre-Calculus 12, Philosophy 12, Punjabi 12, Social Justice 12, Spanish 12, Sustainable Resources 12.
- Sciences: Biology 12, Chemistry 12, Geography 12, Geology 12, Physics 12.

In addition, all applicants must meet the English admission requirement, and Quantitative skills requirement.

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. Program-specific admission requirements parallel those for BC secondary school graduates.

See http://students.sfu.ca/admission/requirements/special-other.html

UNIVERSITY OF BRITISH COLUMBIA

2014/15 Academic Calendar

British Columbia Adult Graduation Diploma

The University recognizes the BCAGD Provincial Diploma for admission to the first year of an undergraduate degree. Applicants who have completed the BCAGD must be at least 19 years of age and meet the following admission requirements:

- Four Adult Basic Education (ABE) Advanced Level or Grade 11 courses, which must include English; Algebraic Mathematics (ABE) or Principles of Mathematics 11; one Science1; and one of Social Science (ABE), Social Studies 11, Civic Studies 11, Language 11, or First Nations 12.
- Four Provincial Level (ABE) or Grade 12, including English, or English 12 First Peoples, and three additional subjects chosen from Biology, Chemistry, Physics, Mathematics (ABE) or Principles of Mathematics 12, Calculus 12, Computer Science (ABE), Economics, Geology, Geography, History, Law 12, English Literature, and Languages.

*Excludes ABE General and Applied Science and Grade 11 Resource Science.

A minimum final course grade of 70% in either English 11 or English 12 is required for all programs.

The admission average will be calculated on ABE Provincial Level English, or English 12, or English 12 First Peoples, and three other ABE Provincial Level or Grade 12 courses, each of which must be graded.

A minimum average of 67% is required for admission to all programs. However, due to limited enrolment, a higher average is required in most programs. All courses must be completed by June. Summer school courses or grades obtained in supplemental examinations will not be considered.

Entrance requirements to specific programs parallel those for BC/Yukon secondary school graduates and applicants should refer to the table Specific Program Requirements for Applicants Following the BC/Yukon Secondary School Curriculum to ensure they have the required courses.

See http://www.calendar.ubc.ca/vancouver/index.cfm?tree=2,22,67,0

UNIVERSITY OF NORTHERN BRITISH COLUMBIA

2014/15 Academic Calendar

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 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 Admission Requirements by Degree Group table.

See http://www.unbc.ca/calendar/undergraduate/admissions/high_school.html#BritishColumbiaAdultGraduationDiploma

UNIVERSITY OF VICTORIA

2014/15 Academic Calendar

British Columbia 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 mandatory 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.

See http://web.uvic.ca/calendar2014/uvicCal-Undergrad-2014.1.pdf

TRANSFER GUIDES

COMPUTER STUDIES TRANSFER GUIDE

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	COMP 030	COMP 040	COMP 060	COMP 080
Capilano University	BCMP 021	BCMP 031	BCMP 041	BCMP 052 (prog) or BCMP 051 (app) or BCMP 053 (app)
College of New Caledonia	COMP 020	COMP 030	COMP 045	
College of the Rockies			COMP 080	COMP 090 (app)
Nicola Valley Institute of Technology		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 020	CPST 030	CPST 040	CPST 050 (app) CPST 055 (app)
Okanagan College		COST 070	COST 011	COSC 012 (prog) COST 012 (app)
Selkirk College	CPST 02	CPST 10	CPST 50 or CPST 52 & CPST 53	CPST 60 or CPST 62 & CPST 63
Thompson Rivers University		COMP 0400	COMP 0500	COMP 0600 (prog) COMP 0640 (app) COMP 0650 (app)
University of the Fraser Valley	COMP 061	COMP 071		COMP 091
Vancouver Community College	COMP 0311 & COMP 0312			COMP 0982 AND COMP 0984
Native Education College		CST 041 & CST 051	CST 061 & CST 071	CST 081 & CST 091
Vancouver Island University			COST 047	COST 067 (app)

(app) = Applied Computer Studies at the Provincial Level
(prog) = Programming (Computer Science) at the Provincial level.

EDUCATION & CAREER PLANNING TRANSFER GUIDE

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College		BEST 041 (CP) BEST 042 (CP) BEST 043 (CP) BEST 044 (CP) BEST 045 (CP)	BEST 040 (CP)	BEST 040 (CP)
Capilano University	EDCP 020 (CP) BECP 021 (CP)		EDCP 040 (CP) BECP 041 (CP)	
College of the Rockies		EDCP 070 (CP)	EDCP 080 (CP)	EDCP 090 (CP) COSU 090 (SS)
Douglas College			CAEP 201, CAEP 202, CAEP 203, CAEP 204 & CAEP 205 (CP)	
Native Education College		EDCP 041 (CP) & EDCP 051(CP)		EDCP 081 (CP) & EDCP 091 (CP)
Nicola Valley Institute of Technology			CRLS 050 (CP)	CRLS 060 (CP) EDCP 1200 (CP)
North Island College		CEP 030 (CP) CEP 031 (CP)		
Northern Lights College		BEST 031 (CP)	BEST 041 (CP)	EDCP 050 (CP) BEST 051 (CP)
Northwest Community College	EDCP 020 (CP)	EDCP 030 (CP)		EDCP 050 (CP)
Okanagan College		EDCP 71 (CP) EDCP 72 (CP) EDCP 73 (CP) EDCP 74 (CP) & EDCP 75 (CP)	EDCP 81 (CP) EDCP 82 (CP) EDCP 83 (CP) EDCP 84 (CP) & EDCP 85 (CP)	
Okanagan College Educacentre		APDC 010 (CP)	APDC 020 (CP)	APDA 030 (CP)
Selkirk College	EDCP 02 (CP)	EDCP 49 (CP)	EDCP 50 (CP)	EDCP 60 (CP) EDSS 60 (SS)

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Thompson Rivers University		EDCP 040 (CP)	STSS 050 (CP)	
Thompson Rivers University – Tl'azt'en Nation			EDCP 024 (CP)	
Thompson Rivers University – Prince George Native Friendship Centre		PGEC 010 (CP)	PGEC 020 (CP)	
University of the Fraser Valley	ECP 064 (CP)	ECP 074 (CP)		ECP 094 (CP)
Vancouver Community College		EEAW 041 (CP) & EEAW051 (CP) BEST 041 (CP) & BEST 051 (CP)	EEAW 061 (CP) & EEAW 071 (CP) BEST 061 (CP) & BEST 071 (CP)	EEAW 081 (CP) & EEAW 091 (CP) BEST 081 (CP) & BEST 091 (CP)
Vancouver Island University		EDCP 030 (CP)	EDCP 047 (CP)	EDCP 067 (CP)
CP = Career Planning course SS = Student Success course Students can use one or both CP and SS provincial level courses towards an Adult Graduation Diploma. Refer to page 18 for BCAGD requirements.				

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.

Photo courtesy of Selkirk College

ENGLISH TRANSFER GUIDE

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	ENGL 021, ENGL 022, ENGL 023, ENGL 024, ENGL 025, ENGL 033*	ENGL 050	ENGL 130	ENGL 092/094 & ENGL 140 (T) ENGL 096
Capilano University	BENF 001, BENF 002, BENF 003, BENF 004, BENF 005, BENF 006*, BENG 021*	BENG 031	BENG 040 or BENG 041	BENG 052 (L)
College of New Caledonia	ENGL 020* ENGL 021 ENGL 022 ENGL 023 ENGL 024 ENGL 025 ENGL 026*	ENG 030	ENG 045	ENG 050 (L) ENG 051
College of the Rockies	ENG 10 & ENG 20, ENG 30 & ENG 40, ENG 50 & ENG 60*	ENGL 070	ENGL 080	ENGL 090 (L) ENGL 091 (T) ELT 089 (L) ENGL 92
Douglas College	ENGU 0100, ENGU 0115, ENGU 0125, ENGU 0146, ENGU 0156, ENGU 0245, ENGU 0256*	ENGU 0350 & 0360, ENGU 355	ENGU 0455	
Kwantlen Polytechnic University	ENGQ 0045, ENGQ 0055, ENGQ 0065* ENGQ 0044, ENGQ 0054, ENGQ 0064*, ENGQ 0056, ENGQ 0066*			ENGQ 1091 ENGQ 1092

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Native Education College				ENGL 091
Nicola Valley Institute of Technology	ENGL 020, ENGL 030*	ENGL 40	ENGL 50	ENGL 60
North Island College	ENG 013, ENG 014, ENG 015, ENG 025, ENG 026, ENG 027*	ENG 033 & ENG 034 ENG 035 ENG 039	ENG 052	ENG 060 (L) or ENG 098 ESL 090 ENG 096
Northern Lights College	ENG 011, ENG 012, ENG 013, ENG 024, ENG 025, ENG 026*	ENGL 030	ENG 040	ENG 050 (L) or ENG 051 (T)
Northwest Community College	ENG 021, ENG 022, ENG 023, ENG 024, ENG 025, ENG 026*	ENG 030 First Nations 030	ENG 040 or ENG 045	ENG 050 (L) or ENG 055 (T) ENG 056
Okanagan College	ENGL 040 or ENGL 041 & ENGL 042 ENGL 050 or ENGL 051 & ENGL 052 ENGL 060 or ENGL 061 & ENGL 062	ENG 070 or ENG 071 & ENG072	ENG 080 or ENG 081 & 082 or Comp 011 or Engl 011	ENGL 012 (L) or EAPR 042 & EAPW 041 (L)
Selkirk College	LSK 01, RSK 01, SSK 01, LSK 02, RSK 02, SSK 02, LSK 03, RSK 03, SSK 03, LSK 04, RSK 04, SSK 04, LSK 05, RSK 05, SSK 05, LSK 06*, RSK 06*, SSK 06*	ENG 10	ENGL 50 or ENGL 52 & ENGL 53	ENGL 60 or ENGL 62 & 63 or ENGL 051 or ENGL 65 (T)
University of BC	ENGL 030*			FN ENGL 012
Thompson Rivers University	ENGL 0300*	ENGL 0400	ENGL 0500	ENGL 0600 ENGL 0620

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Thompson Rivers University – Open Learning		ENGL 0401	ENGL 0501	ENGL 0601 ENGL 0641
University of the Fraser Valley	ENG 042, 043,052, 053, 062, and 063*	ENGL 071	ENGL 081	ENGL 091
Vancouver Community College	ENGL 0311, ENGL0312, ENGL 0313, ENGL 0314, ENGL 0315, ENGL 0316*	ENG 0741, ENG 0751	ENG 0861 & 0871	ENGL 0981 & ENGL 0991 ENGL 0994 ENGL 098 (ESL) ENGL 099 (ESL)
Vancouver Island University	ENGL 011, ENGL 012, ENGL 013, ENGL 014, ENGL 015, ENGL 016*	ENGL 037 (prereq: completion of ENGL 025 or assessment)	ENG 047	ENG 067 (L)
Yukon College		ENGL 030	ENGL 050	ENGL 060 (L)

* = "exit" course for the Fundamental Level L = Literature T = Technical and Professional

Photo courtesy of Selkirk College

INDIGENOUS RANGE OF COURSES

INSTITUTION	COMPUTER STUDIES	EDUCATION & CAREER PLANNING	ENGLISH	SCIENCE	SOCIAL SCIENCES	FINE ARTS/ LANGUAGE
INTERMEDIATE						
Nicola Valley Institute of Technology	COMP 040		ENGL 040			
Northwest Community College			First Nations 030			
Tl'azt'en Nation			ENG 014 (OLA)			
Vancouver Community College Native Education College	CST 041 & 051	EDCP 041 & 051	First Nations ENG 041 & ENG 051	SC 051	FNST 041 FNST 051 SGV 081 SGV 091*	
ADVANCED						
Nicola Valley Institute of Technology	COMP 050	CRLS 050	ENGL 050	BIOL 050	NST 051 Nsyilxcen	NSYL 050 HALQ 050
Northwest Community College					FNS 033	
Thompson River University Tl'azt'en Nation		EDCP 024 (OLA)		FOSC 020 (OLA)	NAST 0500	
Vancouver Community College Native Education College					FNST I & II (061-071)	
	CST 061 & 071		First Nations ENG 061 & ENG 071 (OLA)	SC 061 & SC 071, BIOL 061 & BIOL 071, CHEM 061 & CHEM 071, PHYS 061 & PHYS 071	FNST 11	

INSTITUTION	COMPUTER STUDIES	EDUCATION & CAREER PLANNING	ENGLISH	SCIENCE	SOCIAL SCIENCES	FINE ARTS/ LANGUAGE
PROVINCIAL						
Camosun College			ENGL 096		IST 171, IST 172 IST 092	
College of New Caledonia			ENG 051			
Nicola Valley Institute of Technology		CRLS 060	ENGL 060		NAST 060 INST 061 Nsyilxcen FNST 1200 NSYL 060	FINA 060 FINA 061 FINA 062 FINA 063 FINA 064 FINA 065
North Island College			ENG 096		FNS 065	
Northern Lights College					FNST 051	
Northwest Community College					FNST 050	
Okanagan College					FNS 012	
Tl'azt'en Nation				FOSC 030 (OLA)		
Thompson Rivers University			ENGL 0620		NAST 0600	
University of the Fraser Valley					FNST 091	
Native Education College	CST 081 & CST 091	EDCP 081 & EDCP 091	FNLIT 12 ENGL 12 COMP	BIOL 083 & BIOL 093, CHEM 083 & CHEM 093	FNST 12, CUL 081 & CUL 091, SOC 081 & SOC 091 SGV 081 SGV 091*	

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 above.

ADULT LITERACY FUNDAMENTAL (ALF) TRANSFER GUIDE

INSTITUTION	COMPUTER STUDIES	EDUCATION & CAREER PLANNING	ENGLISH	MATH
Camosun College	COMP 030		Eng 021, Eng 022, Eng 023, Eng 024, Eng 025, Eng 033*	MATH 021, MATH 022, MATH 023, MATH 024, MATH 025, MATH 026*, MATH 034*
Capilano University	BCMP 021	EDCP 020(CP) BECP 021(CP)	BENF 001, BENF 002, BENF 003, BENF 004, BENF 005, BENF 006*, BENG 021*	BMAF 01, BMAF 02, BMAF 03, BMAF 04, BMAF 05, BMAF 06*
College of New Caledonia	COMP 020		ENGL 020* ENGL 021 ENGL 022 ENGL 023 ENGL 024 ENGL 025 ENGL 026*	MATH 020* MATH 021 MATH 022 MATH 023 MATH 024 MATH 025 MATH 026*
College of the Rockies	COMP 60		ENG 10, ENG 20, ENG 30, ENG 40, ENG 50, ENG 60*	MATH 10, MATH 20, MATH 30, MATH 40, MATH 50, MATH 60*
Douglas College			ENGU 0100, ENGU 0115, ENGU 0125, ENGU 0146, ENGU 0156, ENGU 0245, ENGU 0256*	MATU 0110 MATU 0210*

INSTITUTION	COMPUTER STUDIES	EDUCATION & CAREER PLANNING	ENGLISH	MATH
Kwantlen Polytechnic University			ENGQ 0045, ENGQ 0055, ENGQ 0065*, ENGQ 0044, ENGQ 0054, ENGQ 0064*, ENGQ 0056, ENGQ 0066*	MATQ 1071, MATQ 1072, MATQ 1073, MATQ 1074, MATQ 1075, MATQ 1076*
Nicola Valley Institute of Technology			ENGL 020 & ENGL 030*	MATH 020 MATH 030 MATH 040*
North Island College	CPS 025		Eng 013, Eng 014, Eng 015, Eng 025, Eng 026, Eng 027*	MAT 017, MAT 018, MAT 019, MAT 025* MAT 027, MAT 028, MAT 029*,
Northern Lights College	CPST 020*		ENG 011, ENG 012, ENG 013, ENG 024, ENG 025, ENG 026*	MATH 020* MATH 020A MATH 020B MATH 020C
Northwest Community College	CPST 020	EDCP 020(CP)	ENG 021, ENG 022, ENG 023, ENG 024, ENG 025, ENG 026*	MATH 023 MATH 024 MATH 025 MATH 026*
Okanagan College			ENGL 040 or ENGL 041 & ENGL 042 ENGL 50 or ENG 51 & ENG 52 ENGL60* or ENGL 61 & ENGL 62*	Math 041, Math 042, Math 051, Math 052, Math 061, Math 062*
Selkirk College	CPST 02*	EDCP 02 (CP)	LSK 01, RSK 01, SSK01, LSK 02, RSK 02, SSK 02, LSK 03, RSK 03, SSK 03, LSK 04, RSK 04, SSK 04, LSK 05, RSK 05, SSK 05, LSK 06*, RSK 06*, SSK 06*	MSK 01, MSK 02, MSK 03, MSK 04, MSK 05, MSK 06*

INSTITUTION	COMPUTER STUDIES	EDUCATION & CAREER PLANNING	ENGLISH	MATH
Thompson Rivers University			ENGL 0300*	MATH 0300*
University of the Fraser Valley	COMP 061	ECP 064 (CP)	ENGL 042, ENGL 043, ENGL 052, ENGL 053, ENGL 062, ENGL 063*	MA 052, MA 053, MA 062, MA 063*
Vancouver Community College	COMP 0311, COMP 0312		ENGL 0311, ENGL 0312, ENGL 0313, ENGL 0314, ENGL 0315, ENGL 0316*	MATH 0311, MATH 0312, MATH 0313, MATH 0314, MATH 0315, MATH 0316*
Native Education College				MATH 021 MATH 031
Vancouver Island University			ENGL 011, ENGL 012, ENGL 013, ENGL 014, ENGL 015, ENGL 016*	MATH 011 MATH 012 MATH 013 MATH 014 MATH 015 MATH 016*

Note: Asterisk (*) denotes the required exit level by the specific institution.

MATHEMATICS TRANSFER GUIDE

Note: The ALF Math has been divided into six levels. This change will continue to be reflected in this transfer guide in the coming years.

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	MATH 021 MATH 022 MATH 023 MATH 024 MATH 025 MATH 026* MATH 034*	MATH 052 & MATH 053 (A)	MATH 072 & MATH 073 (A) or MATH 137 (A)	MATH 092 & MATH 093 or MATH 105 or MATH 107 or MATH 115
Capilano University	BMAF 01 BMAF 02 BMAF 03 BMAF 04 BMAF 05 BMAF 06*	BMTH 033 & BMTH 034 (A)	BMTH 041 (bus/tec) or BMTH 043 & BMTH 044 (A) or MATH 091 & MATH 096 BMTH 047 & BMTH 048	BMTH 053 & BMTH 054 or MATH 105
College of New Caledonia	MATH 020* MATH 021 MATH 022 MATH 023 MATH 024 MATH 025 MATH 026*	MATH 030 (A)	MATH 044 (dev) or MATH 045 (A) or MATH 042	MATH 050
College of the Rockies	MATH 10 MATH 20 MATH 30 MATH 40 MATH50 MATH 60*	MATH 070	MATH 080 (A) or MATH 081 (bus/tec) or MATH 082 (dev)	MATH 090
Douglas College	MATU 0110 MATU 0210*	MATU 0310 (A)	MATU 0410 (dev) or MATU 0411 (A)	MATU 0412
Kwantlen Polytechnic University	MATQ 1071, MATQ 1072, MATQ 1073, MATQ 1074, MATQ 1075, MATQ 1076*	MATQ 1089 (A)	MATQ 1099 (A) MATQ 1094	MATH 1112

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
Langara College			MATH 1150 (dev)	MATH 1152
Nicola Valley Institute of Technology	MATH 020 MATH 030 MATH 040*	MATH 040 (dev) & MATH 041 (A)	MATH 053 MATH 055 MATH 057 MATH 059	MATH 063 MATH 065
North Island College	MAT 017, MAT 018, MAT 019, MAT 028, MAT 029*, MAT 025*	MAT 033 & MAT 034 (A) or MATH 036 (tec)	MAT 053 (A) or MAT 054 (Bus/Tech) or MAT 046 (dev)	MAT 060
Northern Lights College	MATH 020* MATH 020A MATH 020B MATH 020C	MATH 030 MATH 031	MATH 040 (Algebraic) MATH 044 (bus/tec)	MATH 050
Northwest Community College	MATH 023 MATH 024 MATH 025 MATH 026*	MATH 0301 & MATH 0302 (A) or MATH 031 (bus) or MATH 032 (tec) or MATH 033 (Health)	MATH 0401 & MATH 0402 (A) or MATH 043 (Health) or MATH 046 (bus/tec)	MATH 0501 & MATH 0502 or MATH 053 (calc)
Okanagan College	MATH 041, MATH 042, MATH 051, MATH 052, MATH 061, MATH 062*	MATH 71 & 72 (A) or MATH 71 & 72 (dev)	MATH 011 (A) or MATH 84 & MATH 85 (dev) or ALGE 011 (dev) MATH 084 & MATH 086 (bus/tec)	MATH 012 or MATH 120
Selkirk College	MSK 01, MSK 02, MSK 03, MSK 04, MSK 05, MSK 06*	MATH 10: MATH 46 (dev) MATH 49 (A)	MATH 50 (A), or MATH 52 (A) & MATH 53 (A) or MATH 050 (A) or MATH 54 (Bus/Tech) MATH 56 & 57 (foundations)	MATH 60 or MATH 62 & MATH 63 or MATH 051
Thompson Rivers University	MATH 0300*	MATH 0400	MATH 0500 (dev) or MATH 0510 (A)	MATH 0600 & 0610
Thompson Rivers University – Open Learning Division		MATH 0401	MATH 0523 or MATH 0510 (A)	MATH 0633

INSTITUTION	FUNDAMENTAL	INTERMEDIATE	ADVANCED	PROVINCIAL
University of the Fraser Valley	MA 052 MA 053 MA 062 MA 063*	MATH 075 & MATH 076	MATH 084 (dev) or MATH 085 (A)	MATH 094 & MATH 095 or MATH 096 or MATH 110
Vancouver Community College	MATH 0311 MATH 0312 MATH 0313 MATH 0314 MATH 0315 MATH 0316*	MATH 0750 & MATH 0751 (A) MATH 0750 & 0755 (trades)	MATH 0861 & MATH 0871(A) or MATH 0862 & 0863 (bus)	MATH 0983 & MATH 0993 MATH 0996 & MATH 0997 (calc)
Native Education College	MATH 021 MATH 031*	MATH 050 & 051 (A)	MATH 061 & 071 (A) or MATH 062 & 072 (bus) or MATH 061 & 071 (dev) MATH 62--72 (bus/tech)	MATH 083 & 093
Vancouver Island University	MATH 011 MATH 012 MATH 013 MATH 014 MATH 015 MATH 016*	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
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

GENERAL & APPLIED SCIENCE TRANSFER GUIDE

INSTITUTION	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College	ABSCI INTER		
Capilano University	BBIO 036 & BCHM 036 & BPHY 036	BESC 041	
College of New Caledonia	SC 030	SC 045	
College of the Rockies	SCIE 070	SCIE 082	
Douglas College	DVST 370	DVST 470	
Nicola Valley Institute of Technology	SCIE 040	BIOL 050	
North Island College	SCI 031		
Northern Lights College	SCI 030	SCIE 040	
Northwest Community College	SCI 030 SCI 033		
Okanagan College	SC 70	SC 80 or Science & Tech 011	
Selkirk College	SCIE 10		
Thompson Rivers University	SINC 0400	SINC 0500	
Vancouver Community College	SC 051	SC 061 & SC 071	
Native Education College	SC 051	SC 061 & SC 071	
Vancouver Island University	SC 030	SC 040 or SC 044 or SC 047	

BIOLOGY TRANSFER GUIDE

INSTITUTION	ADVANCED	PROVINCIAL ECOLOGY	PROVINCIAL HUMAN BIOLOGY
Capilano University	BBIO 043 & BBIO 044		BBIO 053 & BBIO 054
College of New Caledonia	BIO 045		BIO 050
College of the Rockies	BIO 080		BIO 090
Douglas College	DVST 472 & DVST 473		
Kwantlen Polytechnic University	BIOQ 1098		BIOQ 1099
Nicola Valley Institute of Technology	BIOL 050		BIOL 060 BIOL 061
North Island College	BIO 051		BIO 060
Northern Lights College	BIO 040		BIO 050
Northwest Community College	BIOL 040		BIOL 050 or BIOL 0501 & BIOL 0502
Okanagan College	BIO 011		BIO 012
Selkirk College	BIOL 50 or BIOL 52 & BIOL 53 or BIOL 050		BIOL 60 or BIOL 62 & BIOL 63 or BIOL 051
Thompson Rivers University	BIOL 0500	BIOL 0620	BIOL 0600
Thompson Rivers University – Open Learning	BIOL 0501		BIOL 0601
University of the Fraser Valley	BIO 083		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 College	BIOL 061 & BIOL 071		BIOL 083 & BIOL 093
Vancouver Island University	BIO 047		BIO 067
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 University	BCHM 043 & BCHM 044	BCHM 053 & BCHM 054
College of New Caledonia	CHEM 045	CHEM 050
College of the Rockies	CHEM 080	CHEM 090
Kwantlen Polytechnic University	CHEM 0094	CHEM 1105
Nicola Valley Institute of Technology	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	CHEM 011	CHEM 012
Selkirk College	CHEM 52 & CHEM 53 or CHEM 50	CHEM 60 or CHEM 62 & CHEM 63
Thompson Rivers University	CHEM 0500	CHEM 0600
Thompson Rivers University – Open Learning	CHEM 0501	
University of the Fraser Valley	CHEM 083	
Vancouver Community College	CHEM 0861 (Chemistry 11-Part 1) CHEM 0871 (Chemistry 11-Part 2)	CHEM 0983 (Chemistry 12-Part 1) CHEM 0993 (Chemistry 12-Part 2)
Native Education College	CHEM 061 & CHEM 071	CHEM 083 & CHEM 093
Vancouver Island University	CHEM 047	CHEM 067
Yukon College	CHEM 50	CHEM 60

PHYSICS TRANSFER GUIDE

INSTITUTION	ADVANCED	PROVINCIAL
Camosun College	PHYS 060	
Capilano University	BPHY 043 & BPHY 044	BPHY 053 & BPHY 054
College of New Caledonia	PHYS 045	PHYS 050
College of the Rockies	PHYS 080	PHYS 090
Douglas College	DVST 476	
Kwantlen Polytechnic University	PHYS 1098	PHYS 1100
Nicola Valley Institute of Technology	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 50 or PHYS 52 & PHYS 53 or PHYS 050	PHYS 60 or PHYS 62 & PHYS 63 or PHYS 060
Thompson Rivers University	PHYS 0500	PHYS 0600
Thompson Rivers University – Open Learning	PHYS 0501	PHYS 0601`
University of the Fraser Valley	PHYS 083	PHYS 093
Vancouver Community College	PHYS 0861 (Physics 11–Part 1) PHYS 0871 (Physics 11-Part 2)	PHYS 0983 (Physics 12-Part 1) PHYS 0993 (Physics 12-Part 2)
Native Education College	PHYS 061 & PHYS 071	
Vancouver Island University	PHYS 047	PHYS 067
Yukon College	PHYS 050	PHYS 060

SOCIAL SCIENCES TRANSFER GUIDE

INSTITUTION	INTERMEDIATE	ADVANCED	PROVINCIAL
Camosun College			PSYC 080 FNHE 112 First Nations Health and Education Issues
Capilano University	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
Nicola Valley Institute of Technology		NST 050 INST 051 Nsyilxcen	INST 060 INST 061 Nsyilxcen FNST 1200
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 10	SOST 050 or SOST 52 & SOST 53	HIST 60 or HIST 62 & HIST 63, SOST 60 (P)
Thompson Rivers University	SS 0400	SOST 0110, PSYCH 0500	SOSC 0600 or NAST 0600 or BBUS 0610

INSTITUTION	INTERMEDIATE	ADVANCED	PROVINCIAL
Thompson Rivers University – Open Learning	SOST 010		FNST 030, FNST 040
Vancouver Community College	SOC SC 051	ENG 098 & 099, FNST I & II (061-071)	PSY 081 & 091 LAW 082 & 092
Native Education College		FNS 061 & 071	FNS 081 & FNS 091 CUL 081 & CUL 091 SGV 081 & SGV 091* SOC 081 & SOC 091 PSY 081 & PSY 091
Vancouver Island University	SOST 030	SOST 047	HIST 067, GEOG 067

Photo courtesy of Selkirk College

GENERIC TOPIC OUTLINES

COMPUTER STUDIES

COMPUTER STUDIES: FUNDAMENTAL LEVEL

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. Basic Knowledge of Computers

- list the basic parts of a computer system (system unit, monitor, keyboard, mouse, USB 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 some common uses of computers in society
- use a mouse/pointing device
- demonstrate the ability to operate a printer (power on, put on line/off line and load paper)

B. Word Processing

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

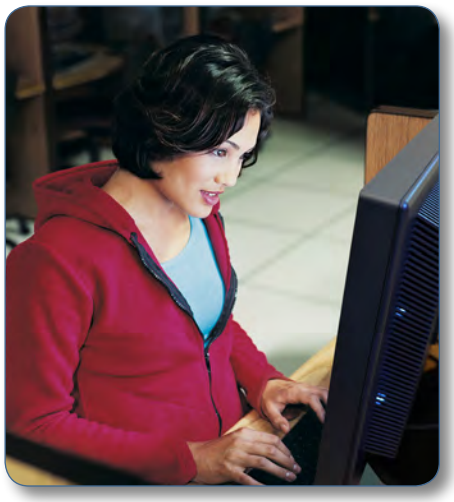
C. Electronic Communication

- internet
  - Favorites/bookmark bar
  - Online forms
  - Searches
- send and receive email including attachments

D. Options

1. Ergonomics
   - Identify workspace ergonomics conditions
2. Identify software maintenance issues
   - software updates and patches
   - deleting browser cache and history files
   - defragmenting hard drives
   - backing up important files
3. 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
4. Internet
   - Examine the Internet from a security perspective
   - Identify the potential consequences of disclosing personal information on-line
   - Evaluate the accuracy, relevance, appropriateness, and bias on electronic information sources such as You Tube.
   - Filling in on-line forms
5. Social Networking
   - Identify and discuss the benefits and dangers of social networking (chat rooms, instant messaging, Twitter, Facebook.)
   - Increase knowledge and real-world technical skills by using social networking technology

6. E-commerce
    - Explain advantages and disadvantages of selling and buying on the Internet
    - List steps involved in making an on-line purchase (print and save proof of transactions; archive and print emails)
    - Create a checklist of questions to ask before making an on-line purchase (e.g., reliability of supplier, shipping and handling, delivery times, warranty information, return policy, Canada customs, privacy policies, business practices record)
    - List security indicators for on-line credit cards, PayPal, and other online payment forms
    - Investigate online banking options
    - Navigate websites to plan a trip: book a flight, hotel and/or a car rental.
7. On-line services
    - Use library websites to search for, request, and renew books and other resources
8. File Management
    - Create and name folders and files to organize images
    - Describe the differences between file types and sizes
    - Perform file backups
9. Digital Photography
    - Transfer and organize pictures from a digital camera to the computer
    - Manipulate and improve basic digital images
    - Build and manage photos on a photo sharing site
    - Send images via Email
10. Communication
    - Describe online synchronous communication (such as Skype or Google+ Hangouts)



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

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, USB 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
- 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 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
- identify workspace ergonomics conditions
- Identify software maintenance issues (software updates and patches, deleting browser cache and history files, defragmenting hard drives, backing up important files, etc.)

COMPUTER STUDIES: ADVANCED LEVEL

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.

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, e.g. USB, firewire, HDMI)

C. Memory and Secondary Storage

It is expected that learners will be able to:

- identify, name and describe Secondary Storage Devices, including:
  - hard disks (fixed and removable)
  - USB devices (e.g. flash drives and USB hard drives)
  - Memory cards (e.g. SD, SC)
  - Online storage (e.g. cloud storage)
  - Optical and magneto-optical storage devices (e.g. CD-ROM, DVD)
- recognize and use capacity descriptors (KB, MB, GB, TB)
- distinguish between and describe the function of RAM, ROM and BIOS.

D. Input and Output

It is expected that learners will be able to:

- identify, name, describe, and distinguish among input and output devices (and associated software):
  - keyboard, pointing devices, scanners
  - video adapters and displays (CRT, e.g. LCD, touch screen)
  - 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.
  - Assign meaningful file and folder names
  - 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 disc formatting (sectors, tracks, index) and defragment a disc
  - recognize a variety of common program and data file types and their associated extension)
- 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
- option: identify workspace ergonomics conditions

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, social networking sites, identity theft, phishing sites, spam 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 location 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
- 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
- describe the implementation of online commerce, including ATM cards, online banking, online shopping and online auctions
- describe the various options for computer connectivity (e.g. cable modems, ISDN, XDSL, routers, wireless, 3G, 4G(LTE)
- send and receive Email (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)
- understanding how the internet was developed and how it functions

Option

1. Databases

It is expected that learners will be able to:

- describe the structure of a database: tables, records, fields, primary keys and foreign keys
- 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
  - design database tables and 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. Keyboarding

It is expected that learners will be able to:

- significantly increase their typing speed
- demonstrate proper keyboarding techniques

4. Presentation Software

It is expected that the learners will be able to:

- Create, manipulate and deliver a presentation

5. 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)

COMPUTER STUDIES: PROVINCIAL LEVEL - COMPUTER APPLICATIONS

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. Current Technologies

It is expected that the learner will be able to:

- Search all facets of the web efficiently (text, images, videos) for material relevant to a specific inquiry.
- Analyze websites critically for value, accuracy, potential malware, and bias.
- Critically evaluate "crowd sourcing" sites as research tools, e.g. opinions on consumer products, travel, health issues, political issues...
- Identify privacy & security issues related to social networking and an online presence.
- Effectively communicate with email utilizing: address books, distribution lists, cc: and bcc: fields, attachments, effective subject lines, spam control.
- Identify email examples of phishing and other online fraudulent activity.
- Use folder (directory) management techniques for computer files, email, etc.
- Compare and contrast a variety of techniques, hardware and software that can be used to back-up computer data.
- Describe the importance of operating system and driver patches, and the processes by which these patches are downloaded and installed.
- Describe anti-virus and anti-malware software, virus & malware risks, scheduled scans and automatic updates.

2. Publishing

It is expected that the learner will be able to:

- organize and present a variety of text, graphic and other data 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 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 cross references, footnotes, indexes and tables of contents where appropriate

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

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

8. Online Technologies

It is expected that the learner will be able to:

- Develop an online electronic portfolio which contains projects that demonstrate the learner's proficiency with computer software.
- Describe the concept of cloud computing, and utilize cloud-based applications such as: word processing, spreadsheets, online collaboration, photo-editing, online storage.
- Utilize electronic means for time and calendar management, task (to do) lists, user ID management, notes and bookmark (favourite) synchronization.
- Create and publish a blog, which includes text, pictures, and hyperlinks.
- Add and update an entry on a wiki.
- Create and publish an online video (podcast).
- Describe software that can be used to remotely access another computer.
- Describe the process for setting up a home wireless network, configuring encryption, and having computers connect to the network. Connect to wireless networks in other locations.
- Describe the benefits of Bluetooth technology, examples of Bluetooth devices, and Bluetooth setup procedures.
- Compare and contrast various mobile computing technologies

9. Web Publishing

It is expected that the learner will be able to:

- create web pages to present text, graphics and other data using appropriate design and layout
- appropriately use fonts, font sizes, headings, justification and tables in a web page
- use both a WYSIWYG editor and an HTML editor in the creation of web pages (as appropriate)
- recognize the various file formats used for text, graphics, sound and animation
- create, modify and manipulate graphic images (e.g. re-size, compress, crop, change format)
- locate and retrieve files (graphics, animations, sounds) from the Internet
- demonstrate an understanding of the implications of copyright & copyleft (e.g. GNU GPL, Creative Commons, etc.) with respect to the re-use of resources on the Internet
- create hyperlinks on text
- create hyperlinks on graphics
- create internal (relative) and external (absolute) hyperlinks in a web page
- create a navigation scheme to move between web pages on a web site
- utilize accessibility features (e.g. alt text)
- employ meta tags (e.g. description, keywords, title)

Optional:

- use JavaScript in web pages
- employ Cascading Style Sheets (CSS)
- use templates, "wizards" and other productivity tools in the creation of web pages
- create an image map

10. Digital Art and Graphics

It is expected that the learner will be able to:

- create basic digital shapes
- describe the difference between bitmap and vector images
- select, move and align objects
- transform objects, including rotation, scaling and reflecting
- create and format graphic text
- position text on a path
- create colours and gradients
- apply colours and gradients to text and other digital objects
- draw straight and curved lines
- trace a scanned object or digital photograph
- create and manipulate layers

COMPUTER SCIENCE: PROVINCIAL LEVEL

Goal Statement

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.

EDUCATION & CAREER PLANNING

CAREER PLANNING (CP)

Goal Statement

The goal of 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

Additional Skills (complete 5 of 7)

3. Study Skills

Students will:

- aecognize 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
- 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
- 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
- develop strategies and attitudes to maintain employment
- identify workplace ethics

STUDENT SUCCESS (SS)

Goal Statement

The goal of Student Success is to develop the learning skills, study strategies and self awareness necessary for students to experience success as life- long learners.

Generic Topic Outline

Student Success involves the development of a broad range of core skills. These skills are appropriate for Intermediate, Advanced and Provincial levels. Of the 14 skill areas listed, 1 – 10 are considered CORE and required outcomes. The additional 4 learning skill areas are optional. It is recognized that the exact content of courses may vary.

Required Learning Outcomes:

1. Adult Learner Awareness

Students will:

- Explore the challenges and advantages of adult learning
- Appreciate the value of life-long learning
- Describe student responsibilities in a college/university environment
- Create awareness of the spiritual, physical, intellectual and emotional dimensions of self and how each of these are impacted by returning to school
- Create awareness of impact on family, friends and coworkers by returning to school
- Identify personal supporters and recognize significance of their encouragement in pursuing goals
- Investigate personal wellness (nutrition, fitness, stress, and habits) and recognize its impact on learning

2. Learning Challenges

Students will:

- Identify barriers to education (addictions, poverty, abuse, physical limitations, etc.)
- Recognize different learning disabilities and their impact on learners
- Identify personal learning challenges
- Express the importance of drawing on learners' strengths
- Examine different applicable strategies

3. Learning Styles

Students will:

- Recognize the properties of visual, auditory and kinesthetic learners
- Identify own learning styles
- Identify student strategies for each style
- Recognize how personal learning style affects perception and processing information

4. Communication Skills

Students will:

- Demonstrate active listening
- Ask effective questions to facilitate understanding
- 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-discriminatory interpersonal skills
- Examine the diversity of relationships and cultures in Canadian society and recognize diverse cultural styles of communication
- Identify and interpret non-verbal communication
- Review writing process

5. Study Skills

Students will:

- Develop critical reading skills (e.g. SQ3R, KWL)
- Navigate textbooks by recognizing and emphasizing key concepts, highlighted sections, chapter summaries, glossaries and indexes
- Utilize a variety of different memory techniques and strategies and apply them to meaningful content (e.g. flashcards, mnemonics, self- testing)
- Create a learning environment conducive to effective study.
- Practice the skills necessary for successful group study experiences.
- Apply effective note taking strategies from listening (e.g.: classroom lecture & workshops, media sources)
- Apply effective note taking strategies from print (e.g.: textbooks, articles)
- Implement solid study habits (e.g.; reviewing, recording, rewriting, summarizing, study partners use of glossary & index, etc.)

6. Test Taking

Students will:

- Identify sources and effects of test anxiety
- Use effective strategies to manage test anxiety
- Actively use study techniques to prepare for tests throughout the term (ongoing cumulative review)
- Use effective study techniques prior to a test
- Use effective strategies during a test (e.g.: Pre-reading test questions, jotting down key things from memory at beginning of test, using weight of question to determine depth of answer required, use of required formulas, using time effectively during a timed test, tips on answering questions)

7. Time Management

Students will:

- Identify and apply strategies for effective time management
- Identify different scheduling tools and evaluate which ones will work for learners' personal needs
- Demonstrate the ability to set long and short term goals
- Create personal schedules including study times, assignments, tests and personal obligations

8. Research

Students will:

- Find information and research topics using various sources
- Compile, evaluate and review information
- Identify plagiarism
- Reference their sources appropriately understanding the different referencing styles (MLA, APA)

9. Support and Resources

Students will:

- Familiarize themselves with student support services including financial aid officers, education advisors, learning disability coordinators, learning specialists, employment services etc.
- Familiarize themselves with course supports available within the institution including writing labs, tutorials, instructor office hours etc.
- Identify and access personal support systems

10. Technology Skills

Students will:

- Perform tasks in word processing
- Use spelling and grammar checks
- Research information on the Internet
- Access and utilize library services
- Use electronic communication (emails, social networks, college email, student portals)
- Create and use folders for organizing course work (e.g. storage on student drives, USB memory and cloud services)
- Bookmark useful references

Optional Learning Outcomes:

1. Online Learning

Students will:

- Compare the pros and cons of online learning
- Evaluate if online learning is a good personal option.
- Identify important strategies for online success
- Explore at least one online learning platform (e.g.: Moodle, Blackboard)

2. Presentation Skills

Students will:

- Recognize and practice using factors that affect physical presence (eye contact, face audience, body language)
- Practice speaking skills including projection, speed, tone, clarity and enthusiasm
- Use humor and practical examples to engage audience
- Use a variety of visual back up in their presentations (e.g.: handouts, props, posters, Power Point presentation)
- Promote discussion & questions from the audience

3. Financial Aid & Funding Options

Students will:

- Develop a personal budget for the duration of school program
- Identify available funding supports including student loans, bursaries, grants, scholarships, aboriginal funding etc.
- Analyze criteria for eligibility and recognize personal accomplishments (eg: identify all community service & volunteer work, awards, affiliations etc.)
- Create a personal list of suitable funding sources

4. BC Transfer Process

Students will:

- Understand the BC transfer process.

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.

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.

ENGLISH—INTERMEDIATE LEVEL

Required Learning Outcomes

1. Critical and Creative Thinking

- recall and interpret information
- identify subject/topic, main ideas, supporting ideas, and sequence
- summarize
- 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
- support a position

2. Speaking and Listening

- ask questions to clarify meaning
- demonstrate effective listening and paraphrasing skills
- use voice and body language effectively
- respond effectively to listener feedback
- 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)

3. Reading, Research, Reference

- use context clues and word structure analysis (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 a variety of reference materials
- 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 point of view, illogical argument, fallacies, stereotypes, bias and propaganda

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 in a range of rhetorical modes (may include narrative, descriptive, process, compare/contrast, cause/effect, classification, expository, and persuasive)
- write a summary
- write an essay
- 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
- establish goals and priorities
- respond appropriately to thoughts, opinions, non-verbal cues, and work of others
- challenge assumptions constructively

6. Media Literacy

- identify and track a theme, topic, or specified content from a variety of media
- interpret common graphics (graphs, charts, tables)
- review a book, movie, play, television program, documentary, piece of music, or other non-print material

7. Computer Literacy

- use computer programs to create, edit, and publish
- use electronic communication
- format assignments appropriately

8. Creative Writing

- write a creative piece (poetry, blog, journal, story)

Photo courtesy of Selkirk College

ENGLISH—ADVANCED LEVEL

Students who have completed the Advanced Level 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
  - identifying purpose and audience
  - evaluating information for accuracy, relevance, and importance
  - recognizing underlying assumptions (bias and tone)
  - synthesizing information
- 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
- effectively use voice and body language
- provide useful input and feedback in a variety of situations (peer editing, group discussion, classroom participation)
- respond appropriately to thoughts, opinions, and work of others
- paraphrase ideas
- deliver an effective oral presentation to inform or persuade

3. Reading, Research, Reference

- use context clues and word structure analysis (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 variety of reference materials
- develop note-taking skills
- develop research skills (internet and library catalog searches)
- critically evaluate, make inferences, and draw conclusions

4. Written Communication

- use the steps of the writing process (prewrite, outline, draft, revise, edit)
- write paragraphs and essays in a variety of rhetorical modes including exposition and persuasion
- write a summary
- 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
- write a review of a book, movie, play, television program, documentary, piece of music, or other non-print material
- write paragraphs and essays on demand
- identify, discuss, and evaluate literary elements (plot, theme, character, setting, conflict)
- analyze and respond to editorial comment, magazine articles, technical or investigative writing, or advertising
- gather, evaluate, and organize information into a research assignment using appropriate documentation (MLA or APA)
- 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 constructively

6. Media Literacy

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

7. Computer Literacy

- use computer programs to create, edit, and publish
- format assignments appropriately
- use electronic communication

8. Creative Writing

- write a creative piece (poetry, blog, journal, story)

Photo courtesy of Thompson Rivers University

ENGLISH—PROVINCIAL LEVEL

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); and the influence of communication formats on language choices and usage

Literature

- analyze literary elements in various genres

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
- 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 and respond effectively to feedback
- give and respond effectively to feedback during oral presentations
- demonstrate a critical understanding of arguments

3. Reading, Research and Reference

Literature, Technical and Essential

- evaluate the effectiveness of one's own and others' written material (literary, technical, business, or informational) 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
- summarize, make inferences, draw conclusions and critically evaluate
- paraphrase main ideas in written material
- 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 and evaluate information, including print
- sources, library resources and the internet

Literature and Technical

- evaluate the influences, writing style and background of particular authors in order to understand their writings.

Literature

- read and demonstrate an understanding of short stories, poetry, drama and the novel, including works by Canadian authors.
- place a piece of literature in its historical and cultural context
- describe the social and personal benefits of reading literature

Technical

- read and analyze the content, purpose and organization of a variety of written material 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

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

- apply a writing process approach (pre-write, draft, revise, edit)
- produce work that demonstrates effective organization, support (eg. examples, evidence) and sentence structure.
- gather, evaluate, synthesize, and organize information 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, essays, exams)

Literature

- write literary essays using appropriate structure, development techniques, and literary conventions.
- discuss literary terms (such as conflict, theme, character, mood, tone, irony, foreshadowing, point of view, and setting) in the analysis of works studied

Technical

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

Technical and 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

INDIGENOUS STUDIES

Vision Statement

Both Aboriginal and non-Aboriginal students will become more aware of First Nations peoples and their ways of knowing, their relationship with community and the land, and their history before and after European contact.

Background

In 2001, the ABE Social Sciences Working Committee determined that there were a number of Social Sciences courses with First Nations content and focus coming forward for articulation and recognized the need for more First Nations input. A working group was formed to gain input from First Nations educators in order to design a structure for First Nations goals and objectives within the Social Sciences and to come up with topics and specific learning outcomes for intermediate, advanced and provincial level First Nations Studies courses. After much discussion, the First Nations Working Group felt that First Nations Studies courses or courses with First Nations content needed to have its own articulation working committee in order to honour the holistic, multidisciplinary nature of First Nations Studies as an academic discipline. Courses in First Nations Studies may encompass the goals, content, and objectives of one or more disciplines such as the sciences, social sciences, humanities, and fine arts.

In 2002, the chairs of the First Nations working group made presentations to the Social Sciences Working Committee, the ABE Articulation Steering Committee and the Deans and Directors of Developmental Education, with all three groups passing motions supporting the establishment of a First Nations ABE Articulation Working Committee. Support was also obtained from the British Columbia First Nations Coordinators and the First Nations Articulation Committee at the post-secondary level.

In 2004, the British Columbia Council on Admissions and Transfer approved the establishment of a First Nations ABE articulation working committee. The committee met for the first time in March 2005 at the Native Education Centre.

In 2011, the First Nations ABE Articulation Working Committee was renamed the Indigenous Adult Basic Education articulation working committee.

Overview

The Indigenous Adult Basic Education articulation (IABE) working committee has a primary mandate to review curriculum in ABE programming to ensure that knowledge of First Nations peoples and their ways of knowing, their relationship with community and the land, and their history before and after European contact is present in any First Nations curriculum approved by this working committee. For curriculum submission in First Nations studies, this is a straight-forward process; however, the committee also receives curriculum that spans two articulation committees' areas of responsibility.

Curriculum submitted for approval will include programs and courses where this committee has primary approval responsibility, i.e. First Nations Studies at the ABE level. This curriculum will be reviewed against our primary mandate and using the broad learning objectives identified for First Nations studies. Additionally the IABE committee will work with other subject-related working group articulation committees. The IABE working group will review the curriculum against the committee's primary purpose, while the relevant working group will review the curriculum against its specific content and skill objectives. For example, First Nations English courses must be approved by both IABE and English ABE Articulation before being submitted to the ABE Steering Committee for approval. Ethno-Botany or Indigenous Science courses will be reviewed by IABE and Science/Biology Articulation Committees.

The interest of the IABE committee is to support the development of curriculum across ABE programming that is respectful of First Nations people and that promotes success of First Nations learners. As such, the First Nations ABE articulation working committee provides a listing of learning outcomes, primarily applicable to First Nations Studies courses, but they may also be useful to the curriculum designer who is preparing materials that will proceed to other articulation committees.

Articulation Process

The IABE Articulation Committee identifies two different pathways for curriculum submissions:

- Curricula focusing on First Nation Studies articulated solely by the IABE committee. This curriculum is community-collaborated, culturally relevant content based curricula.
- Multiple articulations, where curriculum such as English, sciences or math with a FN focus, will require articulation through both the IABE Committee and other articulation committee(s).

Refer to Appendix A for a flowchart describing the IABE articulation process. It is recommended courses be submitted using the course template available on the BCCAT website and that course submissions indicate which type of course it is (of the two bulleted types shown above). It is also recommended that courses be submitted to committee members via email previous to the annual meeting date. Course outline form available at

All courses will be reviewed according to the general vision, overview, goals, and learning objectives. Each course that is specifically First Nations in focus will be articulated against the specific learning objectives for its level.

The IABE committee shall follow protocol by requesting the host institution invite a First Nations community representative, such as an Elder, to welcome and participate with the committee, in order to represent the host territory and its worldview.

Goal Statements

The committee:

- Provides support to all educators and students in BC for the development of culturally relevant curricula.
- Assists other working committees in course development outcomes by integrating First Nations wisdom and knowledge to meet IABE articulation committee standards.
- Considers the academic outcomes identified at the Fundamental through Provincial levels in other content areas (English, math, sciences) but focuses specifically on the goals identified by this articulation committee.
- Supports student achievement of course outcomes with a focus on local First Nations content whenever possible.
- Requires that curriculum submitted will:
  - Display evidence of direct and experiential methods that reinforce First Nations perspectives through use of First Nations paradigms.
  - Demonstrate First Nations involvement in course development, such as fluent speakers, community resource persons, and culturally relevant materials.
  - Demonstrate creative ways to assess and evaluate achievement of students that encourage and acknowledge First Nations ways of knowing.
  - Address the points listed below as applicable to the discipline. It is understood that any course generally addresses at least 80% of the following generic objectives:

Required Learning Outcomes

The goals of the curriculum are broadly applicable to all levels, fundamental through provincial. Participants in all First Nations 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.

Learners in any First Nations course will be able to:

1. Identify and articulate past and present forces shaping First Nation identity, such as culture, land, family, community, language, holistic perspectives, protocol, resistance, hegemony, values, worldview, knowledge, wisdom, and technology.
2. Identify the history, elements, and intergenerational effects of colonization and decolonization.
3. Recognize that while First Nations groups share some common values and perspectives, they are also distinct, diverse, dynamic and evolving.

For courses to be articulated solely by INABE the committee reserves the right to use Social Science learning outcomes as a standard.

Fundamental Level of Indigenous Studies

The committee acknowledges that BC colleges and institutions will not likely offer separate Fundamental First Nations Studies courses. We will develop and share an ongoing list of guidelines and resources for integrating Indigenous ways of knowing, learning, and teaching into Fundamental curricula which will be added to this section.

Examples of Outcomes at the Intermediate Level of Indigenous Studies

Students will be able to:

I. First Nations Diversity in B.C.
   A. Demonstrate of an awareness of First Nations diversity within B.C.
   B. Identify leaders and accomplishments of B.C. First Nations
   C. Discuss various ways of identifying Indigenous peoples (Métis, First Nations, Aboriginal, Indigenous, Inuit, etc.)
   D. Locate and name B.C. First Nations and language families
   E. Identify B.C. tribal associations

II. Values, Traditions, and Roles in Community & Family
   A. Describe family and cultural background
   B. Explore the clan system and other social structures
   C. Read for meaning and clarify values regarding law and justice
   D. Identify roles and responsibilities in community (chief, headman, healer, midwife, hunter, warrior, etc.)
   E. Discuss roles and responsibilities in the family (parent, grandparent, aunt, uncle, etc.)

III. History of First Nations in B.C.
   A. Discuss the pre- and post-contact history of Aboriginal people living in B.C.
   B. Explain the impacts of European contact and settlement.

IV. Trade, Language, Culture, and Relationship with the Land
   A. Identify the impact of fur trade, the gold rush, and resource extraction.
   B. Locate inter-tribal trade routes in B.C.
   C. Explain the importance and significance of social gatherings in First Nations communities.
   D. Compare coastal and interior lifestyles (seasonal rounds, settlements, housing, transportation, etc.

Examples of Outcomes at the Intermediate Level of Indigenous Studies

Students will be able to:

1. Compare and contrast theories of origin of First Nations people.
2. Define terms used to identify First Nations people.
3. Identify appropriate protocol(s) of distinct First Nations communities, such as recognizing the traditional territories of host First Nations.
4. Identify how First Nations peoples are classified, such as language families and cultural groups of Canada.
5. Identify the effects of contact and colonization on First Nations people, including the impact of certain policies such as the residential school system.
6. Explain the significance of languages and oral traditions in First Nations cultures.
7. Review key issues regarding Aboriginal rights and titles, such as the land question.
8. Describe the traditional technologies within an area of study, such as ethnobotany.
9. Discuss the relationship of First Nations communities with the natural and spiritual world.
10. Discuss the challenges of economic development, while recognizing traditional relationships with the land, plants and animals.

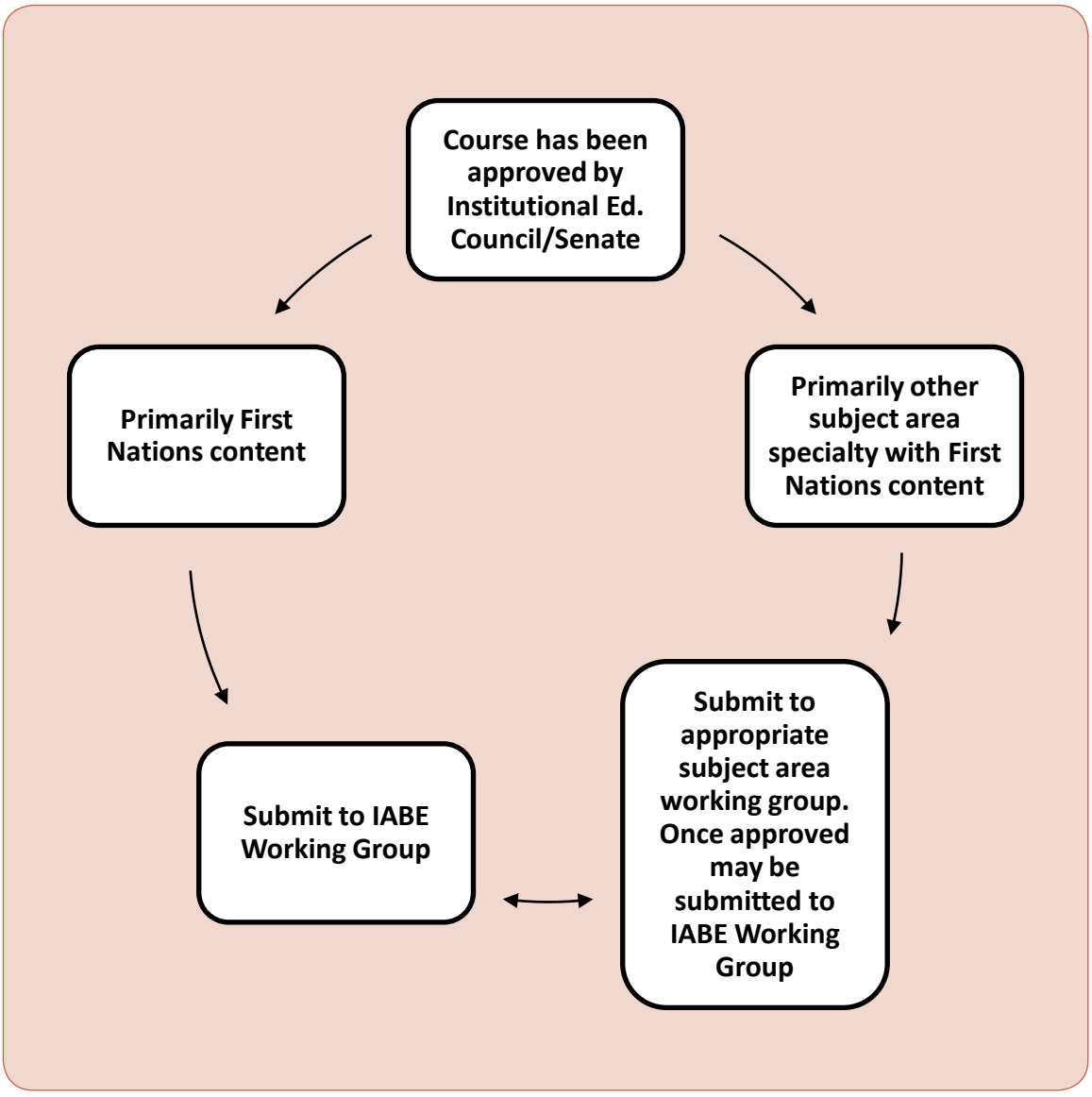
Examples of Outcomes at the Provincial level of Indigenous Studies

Students will be able to:

1. Practice appropriate protocol(s) of distinct First Nations communities, such as recognizing the traditional territories of host First Nations.
2. Analyze how First Nations peoples are classified, such as language families and cultural groups of Canada.
3. Analyze the effects of contact and colonization on First Nations people, including the impact of certain policies such as the residential school system.
4. Examine challenges faced by specific First Nations populations such as women, veterans, elders, and youth.
5. Explain the significance of languages and oral traditions in First Nations cultures.
6. Compare and contrast traditional and contemporary methods and systems of governance
7. Analyze key issues regarding Aboriginal rights and titles, such as the land question.
8. Investigate the traditional technologies within an area of study, such as ethnobotany.
9. Analyze the relationship of First Nations communities with the natural and spiritual world.
10. Evaluate the challenges of economic development, while recognizing traditional relationships with the land, plants and animals.
11. Examine family structures and child rearing practices, including kinship roles and obligations within First Nations.
12. Distinguish between gender roles in First Nations contemporary and traditional culture.

Appendix A

Indigenous ABE Provincial Articulation Process



ADULT LITERACY FUNDAMENTAL LEVELS

Goal Statement

I. ALF General Statement

II. Fundamental Math Statement

I. ADULT LITERACY FUNDAMENTAL LEVEL (ALF)

Goal Statement

Adult Basic Education at the Adult Literacy Fundamental (ALF) level is designed to provide reading, writing (ALFE), and mathematics skills (ALFM) along with associated skills and strategies for communication and learning. Both English and math have six designated levels that range, in English, from non-reading and –writing to readiness for the Intermediate ABE level and, in mathematics, from pre-numeracy to readiness for the Intermediate ABE level.

Areas defined within ALF are: English (Reading and Writing), Mathematics, and Skills and Strategies for Learning. Recommended computer skills are included within these areas. While Social Studies and Science are not delineated as discrete content areas, an integrated approach will incorporate such content. An integrated approach also 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, which students then can apply in their daily lives. Desired results include improved self-confidence, self-reliance and self-evaluation. Students' personal literacy goals should be reflected in the design of any ALF program. The topics listed with each skill are neither exhaustive nor exclusive.

Prerequisites

Ability to speak and understand English.

Outcomes

Learning outcomes for Adult Literacy Fundamental English and Math are illustrated in the following tables:

ADULT LITERACY FUNDAMENTAL ENGLISH (ALFE)

ADULT LITERACY FUNDAMENTAL ENGLISH (ALFE) LEVEL 1

ALFE LEVEL 1 – The student will demonstrate the ability to:

PRE-READING	PRE-WRITING
▸ recognize, count and sequence individual sounds in a carefully spoken word ▸ identify rhyming words ▸ name the letters in the alphabet (in alphabetical order) and recognize/give the sounds of the letters ▸ recognize and name initial consonant sounds in words	▸ hold and use pencil/pen and adjust paper as needed ▸ orient on page: left to right, top, bottom, lines, margin, double spacing, indentation

READING	WRITING	SKILLS AND STRATEGIES FOR LEARNING
▸ hear and read short vowel sounds ▸ read regular consonant-vowel-consonant (CVC) words including some with endings ▸ read some long vowel words, e.g., CVC & e ▸ read simple consonant blends ▸ read 100-150 basic and personal sight words, including some functional words ▸ name some common symbols (e.g., &, $) ▸ read simple sentences, experience stories and paragraphs with common sight and regular CVC words ▸ describe the sequence of a simple story ▸ answer literal questions about a simple story ▸ state opinion about readings	▸ print the alphabet: upper and lower case ▸ print or write own name, address and phone number ▸ print or write CVC words and 50-75 sight words ▸ copy short sentences ▸ complete sentences by adding subject or verb ▸ recognize and use period and question mark ▸ use capitals for beginning a sentence or a name when copying ▸ give sentence answers to questions using words and phrases in the question ▸ dictate and copy experience stories	▸ identify short and long term personal literacy goals ▸ participate in group discussion and activities ▸ work with help and independently for short periods of time on assigned tasks ▸ organize work for ready access, with help receive and respond to feedback ▸ treat classmates and instructor with respect ▸ identify personal learning strengths

ADULT LITERACY FUNDAMENTAL ENGLISH (ALFE) LEVEL 2

ALFE LEVEL 2 – The student will demonstrate the ability to:

READING	WRITING	SKILLS AND STRATEGIES FOR LEARNING
▸ read simple passages and stories with some fluency and recognize end punctuation ▸ use phonic and context clues in reading simple passages ▸ read and follow simple written directions ▸ identify main idea, characters and events from reading ▸ state opinion on readings ▸ read 150-300 personal and functional words ▸ use phonics to decode unknown words	▸ print or write complete sentences ▸ participate in brainstorming to generate writing ▸ print or write short messages and paragraphs ▸ write sentences to questions on reading such as who, what, when, where and why ▸ use assigned vocabulary in sentence writing ▸ write about 150 sight words ▸ use end punctuation ▸ use capitals for proper nouns ▸ write some CVC words with basic suffixes ▸ write some CVC and e words	▸ identify short and long term personal literacy goals ▸ work independently, even with some distraction in the classroom ▸ ask for help when needed ▸ attend to and participate in group discussion and activities ▸ move on to other tasks while waiting for help ▸ give and receive help from classmates in a cooperative manner ▸ communicate respectfully during group work ▸ use time-management skills to complete homework ▸ begin to employ strategies for learning and remembering ▸ look up words for spelling and meaning in dictionary and glossary COMPUTER SKILLS ▸ learn basic word processing skills ▸ name hardware components ▸ turn the computer on and off ▸ open word processing programs, type and save documents

ADULT LITERACY FUNDAMENTAL ENGLISH (ALFE) LEVEL 3

ALFE LEVEL 3 – The student will demonstrate the ability to:

READING	WRITING	SKILLS AND STRATEGIES FOR LEARNING
▸ identify subject, main idea, details and sequence of a short passage ▸ pre-read and reflect on short written passages ▸ summarize short passages ▸ apply critical thinking for fact vs. opinion ▸ begin to use context clues ▸ accurately read words using a variety of word attack skills ▸ recognize and use antonyms, synonyms and homonyms ▸ use dictionary skills to find meaning ▸ demonstrate strategies for learning and remembering words	▸ generate, organize and write ideas (the writing process) ▸ use paragraph format: topic sentence, supporting details, and conclusion ▸ complete a variety of simple forms and documents ▸ write complete simple sentences ▸ identify subject and verb in a simple sentence ▸ correctly use simple past and continuous present and future verb tenses ▸ use capitals for proper nouns ▸ use a dictionary to find spelling ▸ use compound words and contractions ▸ accurately copy short messages and text (i.e. phone, class notes)	▸ identify short and long term goals for literacy learning ▸ work independently ▸ attend to and participate in group discussion and activities ▸ move on to other tasks while waiting for help ▸ give and receive help from classmates in a cooperative manner ▸ communicate respectfully during group work ▸ use time-management skills to complete assigned work ▸ employ strategies for learning and remembering ▸ demonstrate awareness of personal learning strengths ▸ follow simple directions and instructions **COMPUTER SKILLS** ▸ use word processing skills to complete some writing assignments

ADULT LITERACY FUNDAMENTAL ENGLISH (ALFE) LEVEL 4

ALFE LEVEL 4 – The student will demonstrate the ability to:

READING

- pre-read and reflect on short written passages
- identify subject, main idea, detail, sequence of a short passage and fact and opinion
- answer comprehension questions based on text
- summarize longer passages
- analyze characters in text
- differentiate between literal and inferential meaning
- use a dictionary
- actively build new vocabulary
- recognize and use antonyms, synonyms and homonyms
- continue learning and remembering new words
- expand the use of context clues
- increase use of word attack skills

WRITING

- generate and organize ideas
- use paragraph format: topic sentence, supporting details, conclusion
- write short narrative and descriptive paragraphs
- complete a variety of forms and documents
- identify subjects and verbs in simple sentences and use modifiers effectively
- write complete simple and compound sentences
- use commas in a series and in compound sentences
- use consistent verb tense
- correctly use most irregular verbs
- use capitals for proper nouns
- use dictionary and thesaurus for spelling and meaning
- use compound words, contractions, possessives and plurals

SKILLS AND STRATEGIES FOR LEARNING

- set short and long term goals
- work independently
- attend to and participate in group discussion and activities
- move on to other tasks while waiting for help
- give and receive help from classmates in a cooperative manner
- communicate respectfully during group work
- use time-management skills to meet assigned deadlines and complete homework
- employ strategies for learning and remembering
- continue to develop awareness of personal learning strengths

COMPUTER SKILLS

- use word processing skills to complete assigned writing

ADULT LITERACY FUNDAMENTAL ENGLISH (ALFE) LEVEL 5

ALFE LEVEL 5 – The student will demonstrate the ability to:

READING

- express and support opinions about text
- begin to draw inferences and conclusions
- begin to distinguish between fact and opinion
- detect tone of story and emotional reactions of character
- answer comprehension questions on main idea, details, sequence
- identify subject/topic, main ideas, supporting details and sequence
- use pre-reading strategies
- self-monitor reading for comprehension
- independently and fluently read extended expository passages
- independently read longer text
- begin to recognize different purposes for reading
- employ strategies for learning and remembering new words
- use context clues
- apply phonemic awareness

WRITING

- organize their writing using the writing process
- write personal letters using standard format
- produce coherent descriptive, narrative and expository paragraphs
- write an 8-10 sentence paragraph (topic sentence, supporting details and conclusion)
- edit written work
- summarize main ideas after reading and discussion
- identify and write simple, compound and complex sentences
- use a broad range of punctuation, including quotation marks
- identify and correct fragments and run-ons in writing
- use subject-verb agreement and consistent verb tense
- use comma rules
- spell a variety of homonyms and common irregularly spelled words
- use effective spelling strategies
- use contractions correctly
- use a dictionary as a spelling tool
- identify synonyms and antonyms

SKILLS AND STRATEGIES FOR LEARNING

- complete assignments out of classroom setting
- manage time
- set goals
- develop strategies to write tests in a variety of formats
- apply personal learning strategies
- use critical thinking skills while listening and/or viewing
- give concise sequential oral instructions

COMPUTER SKILLS

- keyboard comfortably
- word process and print a document
- begin to use a search engine to find information

ADULT LITERACY FUNDAMENTAL ENGLISH (ALFE) LEVEL 6

ALFE LEVEL 6 – The student will demonstrate the ability to:

READING

- summarize short stories, articles, video and audio tapes
- draw inferences and conclusions
- argue for and against in discussions and written assignments
- read and critically discuss a variety of materials in terms of purpose, cause and effect, logic, fact and opinion, character analysis, point of view (including validity of computer source)
- recognize comparison and contrast, outcome and sequence
- identify and discuss writer's point of view, appraise validity of material from own experience
- read and discuss selected short stories, articles, poetry, songs, etc.
- evaluate own comprehension, through self-reflection, relate to previous knowledge
- use common reference materials such as dictionary, thesaurus, atlas, computer search engines
- locate information using guide words, headings, glossary, table of contents, index, computer menu, etc.
- use structural analysis (e.g. roots, affixes, syllabication, stress, compound words, contractions)

WRITING

- use standard pronoun reference and agreement
- use a variety of processes for organizing writing (i.e. brainstorming, outlining, mapping, etc.)
- write expanded paragraphs with more sophisticated detail and vocabulary
- summarize a writing sample (article, short story, etc.)
- produce coherent paragraphs including expository paragraphs
- write business letters using standard format
- respond to selected material after reading, viewing and listening
- edit written work
- use a broad range of punctuation including quotations and semi-colon
- use a variety of simple, compound and complex sentences in written paragraphs
- identify and correct fragments and run-ons in writing
- use subject/verb agreement and consistent verb tense
- use commas correctly in written work
- use apostrophes correctly to show possession
- use a dictionary as a spelling tool
- use a thesaurus to locate synonyms

SKILLS AND STRATEGIES FOR LEARNING

- manage time and meet goals
- use a variety of test-taking strategies
- develop strategies to enhance capacity as a learner (i.e. stress management, time management, problem solving)
- establish purpose for listening and/or viewing
- use inferential thinking skills
- distinguish between conversational (colloquial) and more formal (standard) spoken language
- give concise, purposeful explanations
- use critical thinking skills to determine validity of information

COMPUTER SKILLS

- word process a document (create, edit, save, retrieve and print)
- use a variety of search engines to find relevant information

ADULT LITERACY FUNDAMENTAL MATHEMATICS (ALFM)

Goal Statement

Adult Literacy Fundamental Level Mathematics (ALF-M) 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.

The ALF-M levels are six designated levels that range from pre-numeracy to readiness for the Intermediate ABE level. Learning Outcomes for all six levels are categorized as CONCEPTS, OPERATIONS/APPLICATIONS or SKILLS & STRATEGIES FOR LEARNING. The outcomes in each of the six ALF-M levels are cumulative and reflect all the skills encompassed by the previous ALF-M level. In many cases, it is necessary to spiral back to review concepts mastered at previous ALF-M levels.

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

ADULT LITERACY FUNDAMENTAL MATHEMATICS (ALFM) LEVEL 1

Students need to demonstrate competency in these outcomes before progressing to the next level. In assessment, it may be determined that some of the outcomes have already been met. In this case, students will focus on the outcomes which still need to be achieved.

In Level 1 the student will be able to:

NUMBER & NUMBER OPERATIONS CONCEPTS	▸ Explain or use examples of keywords: ▸ digit, place value, rounding, estimating, greater than, less than, equal, not equal, odd , even, zero, horizontal, vertical, operation, sum, difference, addition, subtraction, increase , decrease ▸ Identify place value to 100 ▸ Recognize vertical and horizontal format for adding and subtracting
OPERATIONS AND APPLICATIONS	▸ Read and write digits 0 to 9 ▸ Count to 100 ▸ Read and write whole numbers to 100 ▸ Compare and order whole numbers to 100 ▸ Add whole numbers whose sum is 20 or less without carrying ▸ Subtract whole numbers that are 20 or less, without borrowing/trading in ▸ Round whole numbers to the nearest 10

PATTERNS, FUNCTIONS & RELATIONS CONCEPTS OPERATIONS AND APPLICATIONS	▸ Use and apply patterns (shapes, letter and numbers) ▸ Count by 2's; 5's; 10's; up to 100
REAL LIFE APPLICATIONS CONCEPTS OPERATIONS AND APPLICATIONS	▸ Recognize coins and their values ▸ Show the relationship between manipulatives and numbers to 20 ▸ Estimate (ex. "It takes me about an hour to get to work in the morning") ▸ Use estimation in situations such as transportation and time management (ex. estimating commuting time per day) ▸ Apply addition (to 20) to one step word problems in real life situations ▸ Apply subtraction (20 or less) to one step word problems in real life situations
GEOMETRY CONCEPTS OPERATIONS AND APPLICATIONS	▸ Explain or use examples of keywords: ▸ Rectangle, square, triangle, circle, perimeter ▸ Identify rectangle, square, triangle, circle
TIME CONCEPTS	▸ Recognize am/pm clock notation ▸ Recognize common base time units and their relationship to each other (seconds to minutes, etc)
SKILLS & STRATEGIES FOR LEARNING	▸ Apply logical thinking to math operations ▸ Use critical thinking skills ▸ Give and receive help in a respectful manner ▸ Organize work, with help, for easy access ▸ Work independently for short periods of time ▸ Receive feedback and respond appropriately ▸ Identify personal short-term numeracy goals ▸ Ask for help appropriately ▸ Recognize personal learning strengths ▸ Recognize math anxiety ▸ Use strategies to manage math anxiety ▸ Locate information in a text book with help ▸ Manage frustrations of learning

ADULT LITERACY FUNDAMENTAL MATHEMATICS (ALFM) LEVEL 2

Students need to demonstrate competency in these outcomes before progressing to the next level. In assessment, it may be determined that some of the outcomes have already been met. In this case, students will focus on the outcomes which still need to be achieved.

In Level 2 the student will be able to:

NUMBER & NUMBER OPERATIONS CONCEPTS	▸ Explain or use examples of keywords: ▸ multiplier, multiplicand, multiple, multiplication, multiply, product, double, triple, twice, carrying, borrowing, of (ex: 2 groups of 3), times, by ▸ Place value to 1,000,000 ▸ Show the relationship between multiplication and repeated addition
OPERATIONS AND APPLICATIONS	▸ Read and write whole numbers to 1,000,000 in digits and words ▸ Compare and order whole numbers to 1,000,000 (use <; >; =; ≠) ▸ Round whole numbers up to and including 1,000,000 ▸ Add whole numbers without carrying ▸ Subtract whole numbers without borrowing ▸ Add whole numbers with carrying ▸ Subtract whole numbers with borrowing ▸ Estimate a sum using whole numbers ▸ Estimate a difference using whole numbers ▸ Multiply two whole numbers that are less than or equal to 10 ▸ Memorize 10 X 10 multiplication chart
PATTERNS, FUNCTIONS & RELATIONS CONCEPTS	▸ Explain or use examples of keywords: ▸ expanded notation ▸ Show the relationship between multiplication and repeated addition
OPERATIONS AND APPLICATIONS	▸ Write numbers in expanded notation to 10,000 ▸ Write numbers as repeated additions or multiplication (ex: 12=6+6 or 12=2x6) ▸ Multiply one digit numbers by 10; 100; 1000
REAL LIFE APPLICATIONS OPERATIONS AND APPLICATIONS	▸ Apply addition to solve multi-step word problems reflecting real life situations ▸ Apply subtraction to solve multi-step word problems reflecting real life situations ▸ Apply multiplication to one-step word problems reflecting real life situations ▸ Make change up to $1.00 ▸ Use manipulatives to explain multiplication

TIME CONCEPTS	▸ Recognize time using an analog clock ▸ Recognize 24 hour system International clock notation
OPERATIONS AND APPLICATIONS	▸ Convert units of time ▸ Convert to and from 12 hour notation to 24 hour notation ▸ Add time units ▸ Subtract time units
GEOMETRY CONCEPTS	▸ Explain or use examples of keywords: ▸ perimeter
OPERATIONS AND APPLICATIONS	▸ Calculate perimeter of a square ▸ Calculate perimeter of a rectangle
SKILLS & STRATEGIES FOR LEARNING	▸ Apply logical thinking to math operations ▸ Work independently ▸ Ask for help ▸ Receive and respond to feedback ▸ Manage time to complete work ▸ Identify short-term personal numeracy goals ▸ Identify personal learning strengths and styles ▸ Use a multiplication table grid ▸ Use "Answer Key" to mark and self assess ▸ Locate information in a text book ▸ Check that the question was accurately transferred ▸ Organize computation effectively ▸ Use critical thinking skills ▸ Manage frustrations of learning

ADULT LITERACY FUNDAMENTAL MATHEMATICS (ALFM) LEVEL 3

Students need to demonstrate competency in these outcomes before progressing to the next level. In assessment, it may be determined that some of the outcomes have already been met. In this case, students will focus on the outcomes which still need to be achieved.

In Level 3 the student will be able to:

NUMBER & NUMBER OPERATIONS CONCEPTS	▸ Explain or use examples of keywords: ▸ quotient, remainder, dividend, divisor, division, divide, go into, by, factors
OPERATIONS AND APPLICATIONS	▸ Multiply whole numbers with carrying ▸ Estimate products ▸ Memorize division facts ▸ Divide whole numbers without remainder ▸ Divide whole numbers with remainder ▸ Check a division question using multiplication ▸ Estimate quotients ▸ Check multiplication with division
PATTERNS, FUNCTIONS & RELATIONS CONCEPTS	▸ Recognize the relationship between multiplication and division
OPERATIONS AND APPLICATIONS	▸ Divide whole numbers by 10's ; 100's; 1000's ▸ Determine a number's divisibility by 2; 3; 5; and 9
REAL LIFE APPLICATIONS CONCEPTS	▸ Demonstrate division by regrouping
OPERATIONS AND APPLICATIONS	▸ Make change up to $100 ▸ Apply multiplication to real life situations ▸ Apply multiplication to solve multi-step word problems reflecting real life situations ▸ Use manipulatives to explain division ▸ Solve division word problems reflecting real life situations ▸ Solve multi-operation word problems ▸ Calculate unit prices using whole numbers ▸ Calculate best buy using whole numbers

MEASUREMENT CONCEPTS	▸ Explain or use examples of keywords: ▸ basic prefixes of metric system ▸ Recognize basic metric units ▸ Define basic prefixes of metric system
GEOMETRY CONCEPTS OPERATIONS AND APPLICATIONS	▸ Explain or use examples of keywords: ▸ area ▸ Calculate area of a square ▸ Calculate area of a rectangle ▸ Compare and contrast perimeter and area informally, using a drawing or shape
SKILLS & STRATEGIES FOR LEARNING	▸ Apply logical thinking to math operations ▸ Work independently ▸ Ask for help ▸ Receive and respond to feedback ▸ Manage time to complete assignments in and out of class ▸ Recognize personal learning strengths and styles ▸ Use an answer key to mark and self assess ▸ Locate information in a textbook ▸ Develop a variety of test taking strategies ▸ Check that the question was accurately transferred ▸ Organize computation effectively ▸ Set learning goals to manage time to complete assignments in and out of class ▸ Give and receive help in a respectful manner ▸ Use a variety of test taking strategies ▸ Use critical thinking skills ▸ Manage frustrations of learning

ADULT LITERACY FUNDAMENTAL MATHEMATICS (ALFM) LEVEL 4

Students need to demonstrate competency in these outcomes before progressing to the next level. In assessment, it may be determined that some of the outcomes have already been met. In this case, students will focus on the outcomes which still need to be achieved.

In Level 4 the student will be able to:

NUMBER & NUMBER OPERATIONS CONCEPTS	▸ Explain or use examples of keywords: ▸ Decimal, decimal place value (ths), per, of, by, ▸ Identify decimals as part of a whole
OPERATIONS AND APPLICATIONS	▸ Read and write decimals to 10 000ths ▸ Round decimals to a given place ▸ Add decimals ▸ Subtract decimals ▸ Multiply decimals by whole numbers ▸ Multiply decimals by decimals ▸ Divide decimals by whole numbers ▸ Divide decimals by decimals ▸ Divide whole numbers by decimals ▸ Apply decimals to multi-operation problems
PATTERNS, FUNCTIONS & RELATIONS CONCEPTS	▸ Use the number line to order and compare ▸ Identify place value to 10 000ths ▸ Compare decimal in order of place value
OPERATIONS AND APPLICATIONS	▸ Multiply decimals by 10;100;1000 ▸ Divide decimals by 10;100;1000
REAL LIFE APPLICATIONS OPERATIONS AND APPLICATIONS	▸ Write a cheque and record transactions ▸ Calculate unit price ▸ Use unit price to find the best buy ▸ Calculate expenses (phone, utilities, and groceries) ▸ Convert between dollars and cents ▸ Apply addition of decimals in word problems ▸ Apply subtraction of decimals in word problems ▸ Apply multiplication of decimals in word problems ▸ Apply division of decimals in word problems ▸ Apply decimal to multi-operation word problems

MEASUREMENT CONCEPTS	▸ Explain, using an example, length ▸ Explain, using an example, mass ▸ Explain, using an example, capacity ▸ Explain, using an example, temperature ▸ Convert measurements within the metric system using a conversion chart ▸ Convert measurements within the imperial system
OPERATIONS AND APPLICATIONS	▸ Measure length using an appropriate metric measuring device ▸ Measure length using an appropriate imperial measuring device ▸ Measure mass using an appropriate metric measuring device ▸ Measure mass using an appropriate imperial measuring device ▸ Measure capacity using an appropriate metric measuring device ▸ Measure capacity using an appropriate imperial measuring device ▸ Measure temperature using an appropriate metric measuring device ▸ Measure temperature using an appropriate imperial measuring device ▸ Add same metric units ▸ Add same imperial units ▸ Subtract same metric units ▸ Subtract same imperial units ▸ Use metric conversion without a conversion chart ▸ Add mixed metric units ▸ Subtract mixed metric units ▸ Add mixed imperial units ▸ Subtract mixed imperial units
GEOMETRY OPERATIONS AND APPLICATIONS	▸ Calculate perimeter and area of squares and rectangles with decimals
SKILLS & STRATEGIES FOR LEARNING	▸ Apply logical thinking to math operations ▸ Independently track progress and set learning goals ▸ Manage time to complete assignments in and out of class ▸ Give and receive help in a respectful manner ▸ Use a variety of test taking strategies ▸ Use critical thinking skills ▸ Manage frustrations of learning

ADULT LITERACY FUNDAMENTAL MATHEMATICS (ALFM) LEVEL 5

Students need to demonstrate competency in these outcomes before progressing to the next level. In assessment, it may be determined that some of the outcomes have already been met. In this case, students will focus on the outcomes which still need to be achieved.

In Level 5 the student will be able to:

NUMBER & NUMBER OPERATIONS CONCEPTS OPERATIONS AND APPLICATIONS	▸ Explain or use examples of keywords: ▸ Fraction, numerator, denominator, of (multiplication), proper fraction, improper fraction, mixed number , equivalent fractions, LCD, LCM, reciprocal, prime, composite, GCF, simplify ▸ Identify common fraction as part of a whole ▸ Relate common fractions to decimals ▸ Use a graphic to show a proper fraction (ex: a drawing) ▸ Use a graphic to show a mixed number ▸ Reduce proper fractions ▸ Convert improper fractions to mixed numbers ▸ Convert mixed numbers to improper fractions ▸ Write equivalent fractions ▸ Write mixed numbers as improper fractions ▸ Multiply proper fractions ▸ Multiply improper fractions ▸ Multiply mixed numbers ▸ Divide proper fractions ▸ Divide improper fractions ▸ Divide mixed numbers ▸ Solve multiplication word problems using fractions ▸ Solve division word problems using fractions ▸ Find lowest common multiple ▸ Find greatest common factors ▸ Express a number as a product of prime factors ▸ Add proper fractions with like denominators ▸ Add proper fractions with different denominators ▸ Add mixed numbers with like denominators ▸ Add mixed numbers with different denominators ▸ Subtract proper fractions with like denominators

	▸ Subtract proper fractions with different denominators ▸ Subtract mixed numbers with like denominators ▸ Subtract mixed numbers with different denominators ▸ Subtract fractions with borrowing ▸ Solve addition word problems using fractions ▸ Solve subtraction word problems using fractions ▸ Convert fraction to decimals ▸ Convert decimals to fractions
PATTERNS, FUNCTIONS & RELATIONS CONCEPTS	▸ Compare fractions to decimals (<,>,=,≠) ▸ Compare decimals to fractions (<,>,=, ≠) ▸ Compare fractions (<,>,=, ≠) ▸ Compare fractions and mixed numbers (<,>,=,≠)
REAL LIFE APPLICATIONS OPERATIONS AND APPLICATIONS	▸ Divide a whole into parts (pizza, cake) ▸ Apply operations with fractions to recipes (double, half) ▸ Determine whether it is more appropriate to express a number as a decimal or common fraction in a given situation (ex: $2.50 rather than 2 ½ dollars)
GEOMETRY OPERATIONS AND APPLICATIONS	▸ Calculate perimeter of squares with correct formula ▸ Calculate perimeter of rectangles with correct formula ▸ Calculate area of squares with correct formula ▸ Calculate area of rectangles with correct formula
SKILLS & STRATEGIES FOR LEARNING	▸ Use critical thinking skills ▸ Independently set goals ▸ Independently track progress ▸ Apply logical thinking to fractional operations ▸ Build math confidence ▸ Move onto other tasks while waiting for help ▸ Write tests in a variety of formats ▸ Locate and correct errors ▸ Manage frustrations of learning

ADULT LITERACY FUNDAMENTAL MATHEMATICS (ALFM) LEVEL 6

Students need to demonstrate competency in these outcomes before progressing to the next level. In assessment, it may be determined that some of the outcomes have already been met. In this case, students will focus on the outcomes which still need to be achieved.

In Level 6 the student will be able to:

NUMBER & NUMBER OPERATIONS CONCEPTS	▸ Explain or use examples of keywords: ▸ Ratio & Proportion: ratio, rate, proportion Percent: percent, of, commission, tax, discount, simple interest ▸ Compare fractions, decimals and percents
OPERATIONS AND APPLICATIONS	**Ratio & Proportion** ▸ Write the relationship between two numbers or quantities as a ratio ▸ Write the relationship between two numbers or quantities with different units as a rate ▸ Write proportion as a statement of equivalence between two ratios ▸ Determine if a proportion is true using both common denominators & cross multiplying ▸ Solve a proportion for a missing term **Percent** ▸ Convert a decimal to a percent ▸ Convert a percent to a decimal ▸ Convert a fraction to a percent ▸ Convert a percent to a fraction ▸ Find a percent of a number ▸ Find what percent one number is of another ▸ Find a number when a percent is given ▸ Apply ratio and proportion to solve problems involving real-life situations including percent increase and decrease ▸ Read and obtain information from a bar graph ▸ Read and obtain information from a line graph ▸ Read and obtain information from a circle graph ▸ Read and obtain information from a table

PATTERNS, FUNCTIONS & RELATIONS CONCEPTS	▸ Recognize percent notation as a denominator of 100 ▸ Express the relationship between two numbers as a percent
REAL LIFE APPLICATIONS OPERATIONS AND APPLICATIONS	▸ Estimate percentages (mental shopping) ▸ Calculate discounts on purchases ▸ Calculate tips on service ▸ Calculate tax ▸ Calculate wage increase ▸ Calculate budget
DATA ANALYSIS CONCEPTS	▸ Explain or show with examples: the different elements of a graph ▸ Identify bar graph ▸ Identify line graph ▸ Identify circle graph ▸ Identify pictograph ▸ Identify histogram
OPERATIONS AND APPLICATIONS	▸ Read and obtain information from a bar graph ▸ Read and obtain information from a line graph ▸ Read and obtain information from a circle graph ▸ Read and obtain information from a table
SKILLS & STRATEGIES FOR LEARNING	▸ Set further numeracy goals ▸ Use critical thinking skills ▸ Build math confidence ▸ Move on to other tasks while waiting for help ▸ Write tests in a variety of formats ▸ Locate and correct errors ▸ Use strategies to manage test-taking anxiety ▸ Manage frustrations of learning ▸ Apply logical thinking to math operations

MATHEMATICS

MATHEMATICS: INTERMEDIATE LEVEL—DEVELOPMENTAL MATHEMATICS

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

It is expected that learners will be able to:

a) estimate answers to problems

b) use a scientific calculator to calculate and solve problems involving adding, subtracting, multiplying and dividing whole numbers, fractions and decimals

c) check that answers and solutions to problems are reasonable in the context of the given question

2. Measurement

It is expected that learners will be able to:

a) use the common metric units for temperature, length, area, volume/capacity, and mass

b) use the common Imperial units for temperature, length, area, volume/capacity, and force

c) convert between and within metric and Imperial units using tables and/or calculators

d) 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)

e) describe and apply precision, accuracy and tolerance (optional)

f) estimate in metric and Imperial units of measurement (optional)

3. Perimeter, Area, and Volume

It is expected that learners will be able to:

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

4. Ratio and Proportion

It is expected that learners will be able to:

a) read, write, interpret, and compare ratios
b) read, write and identify proportions and use them to solve problems
c) use ratio and proportion to interpret and make scale drawings
d) use proportions to solve problems involving similar triangles

5. Percent

It is expected that learners will be able to:

a) use ratios and proportions to solve problems involving:
    i. finding percent when part and whole are known
    ii. finding part when percent and whole are known
    iii. finding whole when part and percent are known

6. Geometry

It is expected that learners will be able to:

a) name and draw points, lines, rays, segments, and angles
b) name and draw triangles, quadrilaterals, other common polygons and circles
c) 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°, 45°, and 60° angles (optional)
d) classify and distinguish among acute, right, obtuse, straight, reflex, complementary and supplementary, and vertically opposite angles
e) describe the angle relationships created when parallel lines are cut by a transversal
f) measure angles with a protractor
g) classify triangles according to sides and angles
h) identify similar and congruent figures

7. Statistics

It is expected that learners will be able to:

a) conduct a survey to collect data
b) tabulate the data
c) calculate median, mean, mode, and range
d) graph the data
e) interpolate and extrapolate from the information provided

8. Signed (Rational) Numbers

It is expected that learners will be able to:

a) add, subtract, multiply, and divide signed (rational) numbers
b) demonstrate order of operations with signed (rational) numbers
c) graph signed (rational) numbers on the number line
d) define absolute value

9. Algebra

It is expected that learners will be able to:

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

Polynomials

a) add and subtract polynomials
b) multiply and divide polynomials by a monomial
c) remove common factors from polynomials

Trigonometry

a) name the parts of a right triangle
b) find the missing side of a right triangle using the Pythagorean Theorem
c.) find the measure of an unknown side or angle of a right triangle using sine, cosine, or tangent ratios
d) 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:
    a. determine if an ordered pair is a solution
    b. find ordered pairs which are solutions
    c. 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 optional topics A and B in Advanced Level-Algebraic Mathematics

MATHEMATICS: INTERMEDIATE LEVEL—ALGEBRAIC MATHEMATICS

Estimation is a skill that should be emphasized. Students should also be strongly encouraged to check answers and that solutions are reasonable in the context.

1. Operations with Rational Numbers

It is expected that learners will be able to:

a) write fractions as decimals and decimals as fractions
b) add, subtract, multiply, and divide rational numbers
c) use order of operations
d) graph rational numbers on the number line
e) define absolute value

2. Measurement

It is expected that learners will be able to:

a) use the common metric units for temperature, length, area, volume/capacity, and mass
b) use the common Imperial units for temperature, length, area, volume/capacity, and force
c) convert between and within metric and Imperial units using tables and/or calculators
d) use proportional reasoning for conversions

3. Perimeter, Area, and Volume

It is expected that learners will be able to:

a) find perimeters of triangles, squares, rectangles, parallelograms, trapezoids, circles and composite figures using formulas
b) find areas of the above shapes using formulas
c) find the surface areas of cubes, rectangular solids, right cylinders and cones, spheres, and composite solids using formulas
d) find the volumes of cubes, rectangular solids, right cylinders and cones, spheres, and composite solids using formulas
e) distinguish between concepts of perimeter and area and their respective units

4. Ratio, Proportion and Percent

It is expected that learners will be able to:

a) read, write, interpret, and compare ratios
b) read, write and identify proportions and use them to solve problems
c) use ratio and proportion to interpret and make scale drawings
d) use ratio and proportion to solve problems involving similar triangles
e) use ratios and proportions to solve problems involving:
    i) finding percent when part and whole are known
    ii) finding part when percent and whole are known
    iii) finding whole when part and percent are known

5. Algebra

It is expected that learners will be able to:

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

6. Linear Equations and Graphing

It is expected that learners will be able to:

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 which are solutions
d) graph equations of the form x = a and y = b,
e) graph linear equations using
    i) slope and y-intercept
    ii) two intercepts
    iii) a table of values
f) relate slope to grade and pitch
g) find x- and y-intercepts

h) 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

i) solve problems using graphs of linear equations

7. Powers, Roots, and Scientific Notation

It is expected that learners will be able to:

a) read and write numbers expressed as powers
b) evaluate powers with integral exponents
c) apply laws of exponents to simplify expressions
d) express numbers using scientific notation
e) convert between scientific and standard notation
f) determine the square root of a perfect square
g) express a square root as a mixed radical in simplest form (numerical radicands only)
h) approximate square roots of real numbers using a calculator

8. Polynomials

It is expected that learners will be able to:

a) distinguish between monomials, binomials, trinomials and other polynomials (in one variable only)
b) apply the laws of exponents to variable expressions with integral exponents
c) evaluate polynomials by substitution
d) add, subtract, and multiply polynomials in one variable
e) factor polynomials by removing the largest common factor
f) factor binomials of the form $a^2x^2 - b^2y^2$
g) factor trinomials of the form $ax^2 + bx + c$ with a = 1 ONLY
h) divide a polynomial by a monomial

9. Trigonometry

It is expected that learners will be able to:

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

MATHEMATICS: ADVANCED LEVEL—ALGEBRAIC MATHEMATICS

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

2. Solving Linear Equations and Inequalities

It is expected that learners will be able to:

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

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:

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

Optional Outcomes:

h) identify imaginary and complex numbers and express them in standard form
i) add, subtract, multiply, and divide complex numbers

8. Quadratic Equations and Quadratic Functions

It is expected that learners will be able to:

a) solve quadratic equations by factoring, principle of square roots, completing the square and the quadratic formula
b) use the discriminate to identify the number and type of solutions of a quadratic equation
c) write a quadratic equation given its solutions
d) solve rational and radical equations reducible to a quadratic pattern and check that answers are reasonable
e) solve selected polynomial equations that can be factored simplifying to linear and/or quadratic factors
f) 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
g) find the vertex, line of symmetry, minimum or maximum values, *x*- and y-intercepts, domain and range, given the function $f(x) = a(x - h)^2 + k$
h) rewrite $f(x) = ax^2 + bx + c$ as $f(x) = a(x - h)^2 + k$ by completing the square
i) solve problems that can be modeled using quadratic equations including maximum and minimum problems

Optional Outcomes:

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

9. Trigonometry

It is expected that learners will be able to:

a) label the sides of a right triangle with respect to a given angle

b) determine sine, cosine, and tangent ratios of an angle in a right triangle using the side lengths

c) use a scientific calculator to find the trigonometric value for a given angle and to find an angle given its trigonometric value

d) solve right triangles and applied problems using the basic trigonometric ratios, the Pythagorean theorem, and sum of the angles (180°)

e) use the Law of Sines and the Law of Cosines to solve non-right (oblique) triangles and applied problems

Optional Outcomes:

f) use A = 1/2bcsinA to find the area of a triangle

g) determine the quadrant for positive and negative angles in standard position

h) identify coterminal angles

i) determine primary trigonometric function values for angles in standard position

j) identify reference angles

k) evaluate primary trigonometric functions for any angle in a variety of conditions

l) solve trigonometric equations involving the primary functions over a specific domain

m) 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

a) recall the properties of parallel lines, similar and congruent figures, polygons, angle relationships, angle measurements, and basic compass and straightedge construction

b) 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°

- 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)

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

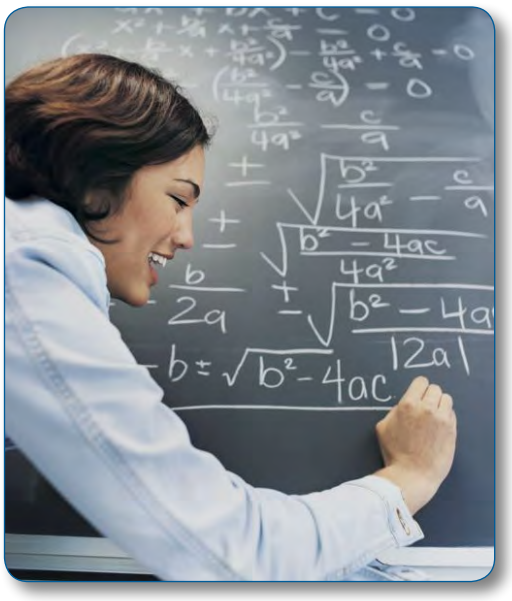
B. Data Analysis

a) explain the uses and misuses of statistics

b) demonstrate an understanding of mean, median, mode, range, quartiles, percentiles, standard deviation, the normal curve, z-scores, sampling error and confidence intervals

c) graphically present data in the form of frequency tables, line graphs, bar graphs, and stem and leaf plots

d) design and conduct statistics project, analyze the data, and communicate the outcomes



MATHEMATICS: ADVANCED LEVEL—BUSINESS/TECHNICAL MATHEMATICS

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:

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

2. First Degree Equations and Inequalities

It is expected that learners will be able to:

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

3. Equations and their graphs

It is expected that learners will be able to:

a) plot points on a coordinate system
b) use number pairs to name points on the coordinate system
c) determine whether a given point is a solution to an equation in two variables
d) (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

e) (optional) given the graph of an equation, determine, where appropriate, the following:
   - *x*- and *y*-intercepts
   - vertex
   - slope

Optional Learning Outcomes

Learners must complete a minimum of three of the following:

A. Consumer Mathematics

It is expected that learners will be able to:

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

B. Finance

It is expected that learners will be able to:

a) solve problems involving compound interest
b) find the effective interest rate
c) solve annuity problems
d) solve loan and mortgage problems
e) determine the finance charge on a loan

C. Data Analysis

It is expected that learners will be able to:

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

D. Measurement

It is expected that learners will be able to:

a) solve problems involving composite shapes and solids, with reference to perimeter, area, volume and surface area

b) calculate maximum and minimum values, using tolerances, for lengths, areas and volumes

c) enlarge or reduce a dimensional object according to a specified scale

E. Geometry

It is expected that learners will be able to:

a) 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

b) classify triangles and quadrilaterals according to their sides and angles

c) draw triangles given:
- three sides
- two sides and an included angle
- two angles and a side

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

F. Trigonometry

It is expected that learners will be able to:

a) 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

b) (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:

a) solve systems of linear equations in two variables graphically and/or algebraically
b) graph linear inequalities in two variables
c) solve graphically, systems of linear inequalities
d) solve practical problems

H. Trades Option

It is expected that learners will be able to solve applied problems (as related to a specific trade) using:

a) algebra
b) geometry
c) right triangle trigonometry
d) ratio and proportion
e) percentage

H. Trades Option

It is expected that learners will be able to solve applied problems (as related to a specific trade) using:

a) algebra
b) geometry
a) right triangle trigonometry
b) ratio and proportion
c) percentage

I. Health Option

It is expected that learners will be able to solve applied problems (as related to the health field) using:

a) ratio and proportion
b) unit conversion
c) percentage

MATHEMATICS: ADVANCED LEVEL—DEVELOPMENTAL MATHEMATICS

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 will be able to:

a) write fractions as decimals and repeating decimals as fractions
b) add, subtract, multiply and divide rational numbers
c) evaluate powers with rational bases and integer exponents
d) demonstrate the order of operations with rational numbers
e) evaluate radicals with rational radicands and distinguish between exact answers and approximate answers
f) simplify, add, subtract, multiply and divide square roots

2. First Degree Equations and Inequalities

It is expected that learners will be able to:

a) solve first degree equations, in one variable, including those involving parentheses
b) solve formulas for a given variable when other variables are known
c) solve formulas for a given variable
d) solve first degree inequalities in one variable
e) solve practical problems that can be solved using a first degree equation

3. Polynomials

It is expected that learners will be able to:

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

4. Rational Expressions

It is expected that learners will be able to:

a) simplify, by factoring, rational expressions consisting of polynomial numerators and either monomial, binomial, or trinomial denominators

b) determine values for which a rational expression is undefined

c) multiply and divide rational expressions

d) add and subtract rational expressions consisting of monomial and/or binomial denominators

e) solve simple rational equations and check solutions

5. Linear Equations

It is expected that learners will be able to:

a) graph a linear equation including the forms $x = a$ and $y = b$

b) given a linear equation or its graph, determine its

   i. slope
   ii. x- and y-intercepts

c) 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:

a) solve a system of first degree equations in two unknowns by graphing, substitution, and elimination methods

b) solve practical problems that can be solved using a system of equations

7. Radical Expressions

It is expected that learners will be able to:

a) simplify square roots with variable radicands

b) add, subtract, multiply and divide square roots with variable radicands

c) solve equations with one square root containing a polynomial radicand and check for extraneous solutions

8. Trigonometry

It is expected that learners will be able to:

a) 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

b) evaluate sine and cosine for angles from 0° to 180° (optional)

c) 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 learners will be able to:

a) solve quadratic equations by factoring

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

c) solve quadratic equations by using the quadratic formula

d) graph $y = ax^2 + bx + c$ and determine its
   i. x- and y-intercepts
   ii. vertex

e) solve practical problems that can be solved using a quadratic equation

B. Statistics

It is expected that learners will be able to:

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

b) represent data graphically using broken line graphs and bar graphs

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

d) calculate z-scores and determine areas under the normal curve

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

C. Financial Mathematics

It is expected that learners will be able to:

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

b) solve compound interest problems for A or P using $A = P\left(1+\frac{r}{n}\right)^{nt}$

c) find the effective interest rate using $E.R. = \left(1+\frac{r}{n}\right)^{n} - 1$

d) solve annuity problems using $A = \frac{nP\left[\left(1+\frac{r}{n}\right)^{n} - 1\right]}{r}$ (for A or P only)

e) find periodic payment using $P = \frac{A\left(\frac{r}{n}\right)}{1-\left(1+\frac{r}{n}\right)^{-nt}}$

f) determine the finance charge on a loan

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

D. Geometry

It is expected that learners will be able to:

a) classify triangles according to angles and sides

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

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

d) use the triangle congruence theorems in simple guided proofs

MATHEMATICS: ADVANCED LEVEL—FOUNDATIONS OF MATHEMATICS

Learning Outcomes

It is expected that learners will use various problem solving strategies throughout the course

- guess and check
- look for a pattern
- make a systematic list
- draw or model
- eliminate possibilities
- simplify the original problem
- work backward
- develop alternative approaches.

CORE LEARNING OUTCOMES

1. Basic Algebra

It is expected that learners will be able to:

a) use the terms rational, irrational, and integer to classify numbers
b) use order of operations with real numbers
c) solve first degree equations and inequalities
d) solve word problems by translating them into mathematical equations
e) solve simple formulae for a given variable

2. Rates

It is expected that learners will be able to:

a) interpret rates in a given context, such as the arts, business, and health sciences
b) solve rate problems using proportions
c) determine unit rates
d) convert units by dimensional analysis (multiplying by one)
e) solve a contextual problem that involves rate or unit rates

3. Linear Relations

It is expected that learners will be able to:

a) write linear equations in slope-intercept form
b) graph linear equations using a table of values
c) graph linear equations using the *y*-intercept and slope and using *x*- and *y*-intercepts
d) given a graph, find the slope of the line
e) draw a graph to represent a rate.
f) interpret slope as an average rate of change
g) interpret domain and range from a graph
h) solve problems that involve linear relations
i) use function notation
j) determine whether a relation is a function

4. Systems of Linear Equations and Inequalities

It is expected that learners will be able to:

a) solve a system of first degree equations in two unknowns by graphing, substitution and/or elimination
b) solve practical problems that can be solved using a system of equations
c) graph a linear inequality in two variables
d) graph the solution for a system of linear inequalities in two variables
e) use the graph to solve optimization problems.

5. Quadratic Functions

It is expected that learners will be able to:

a) factor (GCF, difference of squares, trinomials of the form $ax^2 + bc + c$ with a = 1 only)
b) solve quadratic equations by factoring or using the quadratic formula
c) identify, from a graph, the vertex, intercepts, domain, range, and axis of symmetry
d) determine the vertex using the vertex formula
e) determine whether the y-coordinate of the vertex is a maximum or minimum
f) graph a quadratic function using the vertex, intercepts, or a table of values
g) solve problems that involve the characteristics of a quadratic function

6. Geometry

It is expected that learners will be able to:

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

b) generalize, using inductive reasoning, the angle relationships created when parallel lines are cut by a transversal and the angle sum property of a triangle

c) use deductive reasoning to determine the measures of angles in a diagram that involves parallel lines, angles and triangles

d) measure angles with a protractor

e) classify triangles according to sides and angles

f) explain the difference between similar and congruent shapes

g) solve problems that involve similar triangles

OPTIONAL LEARNING OUTCOMES

Learners must complete a minimum of four of the following seven options, at least one of which is trigonometry or statistics:

A) Financial Math

It is expected that learners will be able to:

a) solve consumer problems involving percentage (sales tax, discounts, etc.)

b) determine and or compare wages in various situations

c) solve simple and compound interest problems

d) solve problems involving different forms of credit

B) Measurement

It is expected that learners will be able to:

a) draw a scale diagram of a 2-D shape

b) solve problems involving scale diagrams of 2-D shapes and 3-D objects

c) use proportions to determine the scale factor or a missing dimension of a 2-D shape or 3-D object

d) determine from a scale diagram the area of 2-D shapes and the volume of 3-D objects

e) determine the effect of a change in scale factor on area and volume

C) Statistics

It is expected that learners will be able to:

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

b) represent data graphically

c) interpret and analyze graphs and identify bias

d) understand how the normal curve can be used to describe a normally distributed population
e) calculate z-scores
f) solve problems that involve standard deviation and normal distribution

D) Logical Reasoning

It is expected that learners will be able to:

a) make conjectures by observing patterns
b) find a counterexample to disprove a given conjecture
c) determine if a given argument is valid, and justify the reasoning.
d) compare, using examples, inductive and deductive reasoning.
e) prove a conjecture, using deductive reasoning
f) use problem solving strategies to solve problems or play games

E) Trigonometry

It is expected that learners will be able to:

a) solve problems involving right triangles, using sine, cosine, or tangent ratios, the angle sum property of triangles and the Pythagorean Theorem
b) solve triangles using Law of Cosines or Law of Sines, excluding the Ambiguous Case.
c) solve contextual problems involving Law of Cosines or Law of Sines

F) Permutations, Combinations, and Simple Probability

It is expected that learners will be able to:

a) evaluate factorial notation
b) evaluate permutation and combination notation
c) solve related applied problems
d) compute the probability of a simple event
e) distinguish between experimental and theoretical probability

G) Project

Possible topics might include

a) Create a variation on a puzzle or a game
b) Research a historical event or person involving math
c) Research an area of interest that involves math
d) Collect and interpret data, using statistical methods

MATHEMATICS: PROVINCIAL LEVEL—ALGEBRA AND TRIGONOMETRY

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:

a) recognize subsets and identify properties of real numbers
b) use interval notation to write a set of numbers
c) evaluate absolute value of a real number and find the distance between two real numbers
d) use rules for order of operations and properties of exponents to simplify expressions
e) add, subtract, and multiply polynomials and factor a polynomial completely
f) determine the domain of a rational expression, simplify rational expressions, perform operations with rational expressions and simplify complex rational expressions
g) use properties of exponents to simplify radical expressions
h) rationalize the denominator or numerator in a rational expression
i) use properties of radicals to simplify and combine radicals
j) define imaginary and complex numbers, express them in standard form, and perform operations with complex numbers
k) solve linear equations, equations with absolute value, quadratic equations, radical equations, and equations reducible to a quadratic form
l) solve linear inequalities, combined inequalities, and absolute value inequalities and graph the solutions on a number line
m) solve applied problems using linear and quadratic equations
n) solve equations of variation and applied problems involving variation
o) solve systems of linear equations in two variables and in three variables
p) distinguish between consistent/inconsistent and dependent/independent systems
q) 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 inverse
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
d) convert between exponential and logarithmic equations
e) find common and natural logarithms using a calculator
f) use basic and inverse properties of logarithms: $\log_b b=1$, $\log_b 1=0$, $\log_b b^x = x$, $b^{\log_b x} = x$
g) use the product rule, quotient rule and power rule to expand or condense logarithmic expressions
h) use the change of base property to find a logarithm with base other than 10 or e
i) solve exponential and logarithmic equations
j) use exponential and logarithmic equations to model and solve real-life applications including exponential growth and decay

Optional Learning Outcomes

k) use a graphing utility to graph exponential and logarithmic functions
l) use a graphing utility to solve exponential and logarithmic functions

5. Trigonometric Functions

It is expected that learners will be able to:

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

b) convert between degree and radian measures of angles

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

d) identify special angles on a unit circle

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

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

g) graph the six trigonometric functions and state their properties

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

i) recognize and use the reciprocal, quotient and Pythagorean identities

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

k) recognize and use inverse trigonometric function notation

l) use a calculator to evaluate inverse trigonometric functions

m) find exact values of composite functions with inverse trigonometric functions

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

o) use trigonometric functions to model and solve real-life problems

Optional Learning Outcomes

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

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

r) find the area of a triangle given the lengths of any two sides and the measure of the included angle: Area = ½(bcsin A) = ½(ac sin B) = ½(ab sin C)

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

t) use the graphing utility to graph trigonometric functions

u) use half-angle formulas to find exact values

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

6. Sequences and Series

It is expected that learners will be able to:

a) find terms of sequences given the general or n^{th} term

b) find a formula for the general or n^{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^{th} term formulas for arithmetic and geometric sequences to find a specified term, or to find n when an *nth* 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

7. Optional Topics

Learners may wish to complete any of the following topics but these outcomes are not required:

A. Conic Sections

a) recognize the equations of the four basic conics: circles, ellipses, hyperbola and parabola

b) write the standard forms of equations of circles, ellipses, and hyperbola with centre at origin and translated centre (h, k)

c) find the centre and radius of a circle, given its equation, and sketch the graph

d) find the centre, vertices and foci of an ellipse, given its equation, and sketch the graph

e) find the centre, vertices, foci and asymptotes of a hyperbola, given its equation, and sketch the graph

f) find the vertex, focus and directrix of a parabola, given its equation, and sketch the graph

g) solve nonlinear systems of equations

h) use nonlinear systems of equations to solve applied problems

i) use a graphing utility to graph conic sections

j) use a graphing utility to solve non linear systems

B. Permutations and Combinations
   a) evaluate factorial notation
   b) evaluate permutation and combination notation
   c) solve related applied problems
   d) use the fundamental counting principle (factorial)

C. 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 of subsets of a set of *n* objects

D. Probability
   a) compute the probability of a simple event
   b) distinguish between experimental and theoretical probability
   c) classify events as dependent or independent

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

MATHEMATICS: PROVINCIAL LEVEL—CALCULUS

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

g) determine continuity of functions at a point $x = a$

h) determine discontinuities and removable discontinuities

i) 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: $f'(x) = \lim_{x \to a} \frac{f(x) - f(a)}{x - a}$

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

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

SCIENCES

SCIENCES: GENERAL AND APPLIED SCIENCE

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.

GENERAL AND APPLIED SCIENCE: INTERMEDIATE LEVEL

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 5 units are required including one from each of the topics A,B,C and D. A minimum of 1 lab or activity from each of topics A, B, C, and D must be included. Additional units may be added as desired. The following are outlines 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

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.

GENERAL AND APPLIED SCIENCE: ADVANCED LEVEL

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. All courses must include experiments and/or field activities of at least 10% of the total time or contents as appropriate. Experiments and/or field activities should be relevant to the course and emphasize those techniques and skills appropriate for the level of the course.

GENERAL AND APPLIED SCIENCE: PROVINCIAL LEVEL

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. All courses must include experiments and/or field activities of at least 10% of the total time or contents as appropriate. Experiments and/or field activities should be relevant to the course and emphasize those techniques and skills appropriate for the level of the course.

SCIENCES: BIOLOGY

Goal Statement

Biology is the study of living organisms and life processes. The life and cultural experiences of adult learners serve as a basis for further study of macro and micro environments. Students gain the knowledge and skills to build an appreciation and understanding of the natural world and their role in it. Development of critical thinking skills facilitates an ability to make sound and ethical decisions about themselves, their homes, workplaces and the global community. The courses should inspire further discovery and exploration in the life sciences.

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

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
- Demonstrate awareness of the diversity and interconnectedness of organisms
- Use scientific method to evaluate information and to analyze experiences
- Communicate about life sciences in their own words and cite references appropriately
- Work independently and also as part of a team, where appropriate
- Evaluate media regarding issues in life sciences
- Demonstrate an awareness of ethical issues relevant to life sciences
- All biology courses must include a minimum of seven dedicated laboratory and /or fieldwork activities, wherein biology learners will:
    - Write a formal lab report
    - Demonstrate familiarity with common lab and field equipment and its use
    - Conduct lab and field procedures safely and ethically
    - Demonstrate microscope skills
    - Collect and record data effectively
    - Analyze and interpret data collected
    - Communicate results and conclusions

BIOLOGY: ADVANCED LEVEL

Core Topics

A. Cell Biology

- Describe the cell theory
- Identify the levels of biological organization
- Describe and compare major structures and their functions in prokaryotic and eukaryotic cells
- Outline the processes of photosynthesis and cellular respiration and explain their roles in living systems
- Explain cell division in terms of sexual and asexual reproduction

B. Evolution

- Cite evidence for evolutionary theory
- Explain the mechanisms of evolution
- Discuss the origin of life

C. Diversity of Life

- Demonstrate an understanding of classification
- Identify major taxonomic groups
- Identify structures and distinguishing characteristics and describe life processes for the following groups:
  - Viruses
  - Bacteria
  - Protists
  - Fungi
  - Plants – nonvascular and vascular
  - Animals – invertebrates and vertebrates

D. Ecology

- Describe energy flow and nutrient cycles within ecosystems
- Characterize ecosystems and the interactions therein
- Describe ecological changes over time
- Define biosphere and characterize biomes
- Identify and evaluate ecological issues

Options

The following topics may be included:

- Bioethics
- Ethnobotany
- Resource management
- Applied ecology
- Methods in ecology
- Behavioural ecology
- Genetics
- Parasitology
- Local topics

Laboratory Skills

All biology courses must include a minimum of seven dedicated laboratory and/or fieldwork activities, wherein biology learners will:

- Demonstrate familiarity with common lab and field equipment and its use
- Conduct lab and field procedures safely and ethically
- Demonstrate microscope skills
- Collect and record data effectively
- Analyze and interpret data collected
- Communicate results and conclusions

BIOLOGY: PROVINCIAL LEVEL

Human Biology:

Core Topics

A. Cell Biology

- Explain the role of molecules, including water, carbohydrates, proteins, lipids, and nucleic acids
- Describe major structures and functions of cells and their components, including
  - the basic mechanisms of protein synthesis
  - the basic mechanisms of membrane transport
  - the basic mechanisms of DNA replication
- Describe the role of enzymes and their importance to cellular processes.
- Outline the processes of cellular respiration
- Describe and compare mitosis and meiosis

B. Genetics

- Describe the principles of inheritance
- Solve basic genetics problems
- Describe the role of DNA

C. Human Biology

- Apply the concept of homeostasis
- Demonstrate knowledge of integration of tissues, organs, and systems
- Identify structures and describe functions of at least six of the following:
  - Skeleto-muscular system
  - Digestive system
  - Cardiovascular system
  - Blood and immunity
  - Respiratory system
  - Endocrine system
  - Nervous and sensory system
  - Excretory system
  - Reproductive system

Options

The following topics may be included:

- Bioethics
- Biotechnology
- Cancer
- Human development
- Local topics
- Nutrition
- Photosynthesis
- Public health issues

Laboratory Skills

All biology courses must include a minimum of seven dedicated laboratory and /or fieldwork activities, wherein biology learners will:

- Write a formal lab report
- Demonstrate familiarity with common lab and field equipment and its use
- Conduct lab and field procedures safely and ethically
- Demonstrate microscope skills
- Collect and record data effectively
- Analyze and interpret data collected
- Communicate results and conclusions

BIOLOGY: PROVINCIAL LEVEL

Ecology:

Core Topics

A. Cell Biology

- Explain the role of molecules, including water, carbohydrates, proteins, lipids, and nucleic acids
- Describe major structures and functions of cells and their components, including
  - the basic mechanisms of protein synthesis
  - the basic mechanisms of membrane transport
  - the basic mechanisms of DNA replication
- Describe the role of enzymes and their importance to cellular processes.
- Outline the processes of cellular respiration
- Describe 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 functions
- Describe the functions of plant control and reproductive systems

D. Animal Anatomy and Physiology

- Apply the concept of homeostasis
- Demonstrate knowledge of integration of tissues, organs and systems
- Identify structures and describe functions of the following systems:
- Respiratory system
- Cardiovascular system
- Skeleton-muscular system
- Reproductive system
- Nervous and sensory systems

E. Ecology

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

Laboratory Skills

All Provincial Biology courses must include a minimum of seven dedicated laboratory and /or fieldwork activities. The learning outcomes for these are described in the Overall Learning Outcomes for biology.

SCIENCES: CHEMISTRY

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, 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.

The Learning Outcomes

Chemistry learners will:

- Obtain the prerequisite body of knowledge and skills that will provide a basis for further academic and career / vocational education and training
- Demonstrate an awareness of chemistry in everyday life
- Demonstrate an awareness of chemistry in solutions to environmental challenges
- Apply scientific method to investigate phenomena
- Communicate effectively using the language of chemistry
- Carry out all duties in an ethical, professional manner, including the collection and treatment of data
- Work independently and also as part of a team, where appropriate
- Handle equipment and chemicals in a safe and effective manner with regard to personal safety and the safety of others

CHEMISTRY: ADVANCED LEVEL

Core Topics

A. Measurement

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

B. Properties of Substances

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

C. 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

D. 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

E. 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

F. Bonding

- Define covalent and ionic bonding
- Construct the formulas of compounds
- Use electronegativity to predict bond types
- Draw Lewis structures, predict molecular shapes, and determine polarity

G. Nomenclature

- Write names for compounds given the formulae and write formulae for compounds given the names for the following types of compounds:
  - Covalent compounds
  - Ionic compounds
  - Compounds containing polyatomic ions
  - Compounds containing transition metals
  - Acids

H. 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

I. 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 stiochiometric calculations involving solutions including titrations

J. Organic Chemistry

- Classify substances as organic
- Differentiate the various types of bonding between carbon atoms
- Write names and draw structures of hydrocarbons
- Categorize organic compounds based on their functional groups

Option

Options may include additional organic chemistry, nuclear chemistry, gas laws, and environmental ethics

Laboratories

Chemistry laboratories are an essential component of the study of chemistry.
During laboratories, students reinforce theory through practice. Laboratories develop skills in safety, procedures, techniques, data collection, analysis, and communication.

In the laboratory exercises, students will:

- List the safety and protective equipment available in a laboratory setting
- Demonstrate the appropriate procedures and techniques for dealing with particular hazards and hazardous materials
- Follow instructions and procedures
- Handle appropriate equipment for measuring mass, volume, and temperature
- Prepare solutions
- Perform titrations
- Collect and record data effectively
- Analyze and interpret data
- Communicate results and conclusions

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

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
- Ksp and solubility

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 Ka
- 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, Eo, 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

Options

Options may include: organic functional groups, thermochemistry, nuclear chemistry, biochemistry, environmental ethics, and industrial applications

Laboratories

Chemistry laboratories are an essential component of the study of chemistry.
During laboratories, students reinforce theory through practice. Laboratories develop skills in safety, procedures, techniques, data collection, analysis, and communication.

In the laboratory exercises, students will:

- List the safety and protective equipment available in a laboratory setting
- Demonstrate the appropriate procedures and techniques for dealing with particular hazards and hazardous materials
- Follow instructions and procedures
- Handle appropriate equipment for measuring mass, volume, and temperature
- Prepare solutions
- Perform titrations
- Collect and record data effectively
- Analyze and interpret data
- Communicate results and conclusions
- Write formal laboratory reports

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

SCIENCES: PHYSICS

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. Numerical examples and derivation of formulae will be algebra based. 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:

- Use the language and concepts of physics to describe how physical processes, devices and phenomena work
- Obtain the prerequisite 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
- Apply mathematical skills to solve physics based problems
- Develop critical thinking skills

PHYSICS: ADVANCED LEVEL

Core Topics

A. Measurement

- Solve problems involving SI units
- Maintain the correct number of significant numbers in calculations
- Use uncertainties in measurement

B. Kinematics

- Use the language and concepts of kinematics to describe motion
- Analyze and solve kinematics in one dimension
- Construct and interpret displacement versus time curves
- Construct and interpret velocity versus time graphs
- Solve problems involving uniform acceleration

C. Dynamics

- Use the language and concepts of dynamics to describe forces and energy
- Analyze and solve dynamics in one dimension using free body diagrams
- Apply Newton's laws of motion in one dimension
- Solve problems involving:
  - Friction forces
  - Gravity forces including Newton's Law of Universal Gravitation
  - Elastic forces
- Analyze and solve problems in kinetic and potential energy
- Analyze and solve problems in energy conservation
- Solve problems involving work and power
- Solve problems involving impulse and conservation of momentum in one dimension.

D. Electricity

- Use the language and concepts of electricity to describe electrical phenomena
- Analyze and solve problems using Coulomb's law
- Analyze and solve problems involving Ohm's law
- Define and distinguish between electric potential difference, resistance and current
- Solve simple DC resistance problems involving series, parallel and combination circuits

E. Heat

- Use the language and concepts of thermodynamics to describe the transfer of heat energy
- Define and distinguish between temperature, heat energy and specific heat capacity
- Analyze and solve 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
- Modern physics

Laboratories:

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

- Collecting data through observation:
  - Record a measurement to the appropriate level of precision
  - Recognize that all measured values have an uncertainty
- Constructing graphs:
  - Choose appropriate scales
  - Determine line of best fit
  - Label correctly
- Drawing conclusions from observations and data:
  - Identify and discuss sources of error
  - Calculate and interpret the slope of a line
  - Relate conclusion to objectives
- Calculating experimental error:
  - Determine % error and % difference where appropriate
- Completing formal lab reports

PHYSICS: PROVINCIAL LEVEL

Core Topics

A. Kinematics in Two Dimensions

- Use the language and concepts of kinematics to describe motion in two dimensions
- Resolve, add and subtract vectors
- Analyze and solve kinematics in two dimensions

B. Dynamics in Two Dimensions

- Use the language and concepts of dynamics to describe forces, energy and momentum
- Analyze and solve dynamics in two dimensions using free body diagrams
  - Two-dimensional equilibrium – translational and rotational
  - Momentum in two dimensions
  - Energy conservation
  - Uniform circular motion

C. Electrostatics

- Use the language and concepts of physics to describe electrostatic phenomena
- Analyze and solve electrostatic forces and electric fields in two dimension
- Analyze and solve electric potential and electric potential energy

D. Electromagnetism

- Use the language and concepts of physics to describe electromagnetic phenomena
- Analyze and solve problems involving magnetic forces and magnetic fields in two dimensions
- Analyze and solve problems involving electromagnetic induction – Faraday's Law and Lenz's law
- Describe devices that operate using electromagnetic induction

E. Waves and Optics

- Use the language and concepts of physics to describe wave phenomena
- Define and distinguish between amplitude, wavelength, frequency, wave speed and period
- Analyze and solve problems involving wave phenomena – refraction, reflection, total internal reflection
- Describe various wave phenomena and the conditions which produce them
- Construct ray diagrams for mirrors and lenses

Options:

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

- AC circuits
- Relativity
- Quantum physics
- Electronics
- Fluids
- Nuclear physics
- Kirchhoff's laws

Laboratories:

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

- Collecting data through observation:
  - Record a measurement to the appropriate level of precision
  - Recognize that all measured values have an uncertainty
- Constructing graphs:
  - Choose appropriate scales
  - Determine line of best fit
  - Label correctly
- Drawing conclusions from observations and data:
  - Identify and discuss sources of error
  - Calculate and interpret the slope of a line
  - Relate conclusion to objectives
- Calculating experimental error:
- Determine % error and % difference where appropriate
- Completing formal lab reports

SOCIAL SCIENCE

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,
3. Geographic, historic, legal, political, psychological, racial, spiritual, etc.
4. Analyze and assess these issue perspectives to build a point of view
5. 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:
    i. Libraries by using resource books, texts and periodicals
    ii. Media sources by using computers, video and audio materials
    iii. Direct sources such as interviews, surveys and observation
2. Extract, summarize and report information from a variety of media, such as:
    i. Regional, national and global maps
    ii. Details of latitude and longitude, scale and distance
    iii. Contour and relief maps
    iv. Artifacts and documents

   v. Historical and contemporary media, art, literature, cartoons, etc.
   vi. Electronic media: Internet resources, software
3. Organize information into a range of formats, such as:
   i. Notes, outlines, and reviews
   ii. Maps, graphs, and tables
   iii. Research summaries
4. Analyze information in a variety of ways by:
   i. Finding main ideas
   ii. Asking evocative questions
   iii. Comparing main ideas with other material and sources of information
5. Demonstrate the ability to communicate through a variety of methods by:
   i. Writing summaries
   ii. Preparing short essays and papers
   iii. 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. 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:
   i. Demonstrate knowledge of the materials
   ii. Demonstrate the ability to comment on and question the material
   iii. Identify statements that reflect consistent or contradictory views
   iv. 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. Report on research using MLA/APA standards
4. Write essays that demonstrate a synthesis of complex information
5. Generate a personal point of view about some aspect of society based on their research
6. Create or apply strategies to compare aspects of society

SOCIAL SCIENCE: INTERMEDIATE LEVEL

Canada from 1815 to World War I

Intermediate Social Science students will:

A. Identify and use sources of information from:
   i. Libraries by using media and non-media sources
   ii. Direct sources such as interviews, surveys and observation

B. Extract and report information from media and non-media sources using
   i. Regional, national, global, contour and relief maps some of which include latitude and longitude, scale and distance

C. Extract and organize information into a range of formats, such as:
   i. Notes, outlines, and reviews
   ii. Maps, graphs, and tables

D. Analyze information in a variety of ways by:
   i. Finding and comparing main ideas with other material and sources of information

E. Demonstrate the ability to communicate through written and non-written methods that may include summaries, papers, projects, presentations and tests.

1. Identity, Culture and Society:

   A. Identify and describe selected groups within Canadian society, including aboriginal and immigrants

   B. Evaluate the impact of interactions among selected Aboriginal peoples, European explorers, and settlers

   C. Evaluate the impact of immigration on Canadian society

2. Governance

   A. Describe the evolution of government in Canada, including the BNA Act.

   B. Examine political, economic, social, and geographical factors that led to Confederation and to the development of Canada's provinces and territories, including the Red River and Northwest Rebellions.

   C. Describe the structure and function of Canada's federal, provincial, and local governments.

   D. Describe the roles and responsibilities of the three branches of Canadian government (executive, legislative and judicial).

   E. Describe the impact that select legislation had on aboriginals

3. Economy and Industrialization

   A. Describe the impact of Macdonald's National Policy on Canada

   B. Identify the impact of industrialization on Canada's economy

   C. Examine the development of British Columbia's economy in selected regions

   D. Describe the impact that industrialization had on aboriginals

4. Geography and Environment

   A. Identify and describe the political divisions and physiographic regions of Canada as well as the geological processes that formed these regions.

   B. Examine the impact of select resource development in British Columbia

SOCIAL SCIENCE: ADVANCED LEVEL

General Outcomes

It is expected that Advanced Social Studies students will:

A. Identify sources of information from resource books, texts, periodicals, interviews as well as digital media.

B. Extract, summarize and report information from a variety of media

C. Analyze information by finding main ideas, asking evocative questions and comparing main ideas with other material.

D. Demonstrate the ability to communicate through a variety of methods including essays, summaries, debates, maps, charts, graphs and presentations.

E. Clarify personal values and positions in society.

F. Distinguish between fact and opinion and identify statements that reflect consistent or contradictory views.

I. Canadian History

A. Review the history of Aboriginal people living in Canada

B. Explain the effects of European settlement.

C. Identify Canada's international contributions from World War 1 to the present, including participation in peace keeping roles.

D. Describe major social, economic, and political changes within Canada and their impact including: The Great Depression, the evolution of women's rights, technological advancement, globalization, and climate change.

II. Culture

A. Define multiculturalism and evaluate this term within a Canadian context, past and present.

B. Recognize different ethnic groups within Canada and review their contributions and challenges from 1900 to the present.

C. Distinguish between the distinct cultures and values of local Aboriginal groups

D. Define racism, assimilation, inequity and integration.

E. Evaluate the social, political and economic contributors to the Canadian identity

III. Canadian Government, Law and Citizenship

A. State the purpose and origins of government.

B. Identify political ideologies and Canadian political parties.

C. Describe major features of the Canadian Charter of Rights and Freedoms.

D. Outline the roles and responsibilities of each of the levels and branches of Federal, Provincial, Territorial, Municipal and Aboriginal governments in Canada.

E. Identify the rationale for law in a democratic society.

F. Outline the stages of passing a law.

G. List the avenues to affect change within the current political system.

IV. Economics

A. Identify micro and macroeconomic terms and concepts including: capital, labour, technology and transport.

B. Differentiate between needs and wants.

C. Describe supply and demand economics by giving a historical overview

D. Provide examples of community and regional development and evaluate their benefits and challenges.

E. Identify issues in economics such as planning, taxation, government spending, free and fair trade practices and conserver society.

F. Identify current economic issues including globalization, climate change.

Psychology - Generic Topic Outline

I. Relationships
II. Human Development
III. Culture
IV. Self Esteem
V. Group Dynamics
VI. Conflict Resolution
VII. Decision Making/Problem Solving
VIII. Assertiveness
IX. Fields of Psychology
X. Communication
XI. Perception
XII. Health and Wellness
XIII. Definitions

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.

SOCIAL SCIENCE: PROVINCIAL LEVEL

Geography - Generic Topic Outline

The focus is on Physical and Human Geography.

I. **Demography:** By the end of this unit the student will be able to
   A. Distribution and density
      1. Explain factors which influence population distribution and density
      2. Understand the relevance and limits of methods used to measure the distribution and growth of human populations.
   B. Population growth and control
      1. Describe how population growth, the standard of living of a country or region, and the rate of consumption of resources are all related.
      2. Discuss the various predictions for population growth and the various ideas for limiting the rate of population growth.
   C. Food consumption and Distribution; Discuss factors that determine food consumption and distribution.

D. Migration
    1. Describe the movements and the motives for the movement away from migrants' original locations.
    2. Discuss the impact of emigration on the country or region of origin and immigration on the new country or region.
    3. Describe current migration patterns and the reasons for this migration

II. **Meteorology & Climatologic:** By the end of this unit the student will be able to

A. Earth and sun relationships
    1. Describe the relationships between the earth and the sun.
    2. Describe how the energy from the sun and from within the Earth is distributed and changed by Earth's systems.

B. Atmosphere, structure and composition
    1. Understand how the Earth's atmosphere evolved and its relationship to the hydrosphere, the lithosphere and the biosphere.
    2. Describe the structure and function of the atmosphere and explain why the temperature of the atmosphere increases and decreases as you go through the various layers.

C. Insolation and temperature
    1. Describe the relationship between insolation, topography and the temperature of various parts of the Earth's surface.
    2. Explain how energy is transferred and transformed as it moves through the Earth's atmosphere, hydrosphere and lithosphere.

D. Atmospheric pressure and winds
    1. Describe the major atmospheric circulation patterns in the upper and lower atmosphere and explain the differences between surface and upper atmospheric winds.
    2. Explain how surface winds affect the ocean currents and how the oceans affect air pressure and therefore wind direction and velocity.

E. Moisture, humidity and precipitation
    1. Explain the relationship between moisture, humidity and precipitation.
    2. Describe the various forms and patterns of precipitation and the geographic conditions that determine what type and pattern of precipitation occurs.

F. Weather Systems and Hazards
    1. Be able to map weather and be able to interpret a weather map.
    2. Describe the Earth's major weather systems and the various mechanisms that drive these systems
    3. Describe and explain major weather events such as El Nino, cyclonic storms and monsoons.

4. Appreciate the possible impacts of weather especially storms on humans.
5. Know some precautions to take to prevent loss of life or damage to property from storms.

G. Climate and Climate Change

1. Differentiate between climate and weather.
2. Describe the numerous geographic factors that determine the climate of various regions of the Earth including geomorphology and ecology.

III. **Geomorphology:** By the end of this unit the student will be able to

A. Rocks:

1. Describe the formation of various igneous, sedimentary and metamorphic rocks and classify common rocks based on their mineralogy and texture

B. Tectonic forces

1. Discuss the evidence for the Plate Tectonic theory and how it explains many of Earth's major processes such as volcanism and earthquakes.
2. Describe the tectonic forces and the resultant landforms.

C. Weathering and Gradational forces

1. Discuss the physical and chemical processes that break rock down into sediments and soils.
2. Identify and describe landforms caused by erosive forces such as moving water, glaciers and wind and describe how each is formed.
3. Identify and describe landforms caused by deposition by moving water, glaciers and wind and describe how each is formed.
4. Describe the changes to the land surfaces of the Northern Hemisphere during and after the last Ice Age.

D. Geophysical hazards

1. Relate the location, depth and intensity of earthquakes to plate margins.
2. Discuss the factors that determine the amount of destruction caused by an earthquake and the other geologic processes that may result from an earthquake including tsunamis.
3. Describe the conditions that lead to a flood and how humans can be protected from erosion by water including flood events
4. Describe how human activity often causes or contributes to geophysical hazards such as landslides and increases their effects.
5. Know the steps that people in high-risk areas should take to minimize the impact of geophysical hazards on their person and property.

IV. **Cartography:** By the end of this unit the student will be able to

A. Types of maps: Explain the various types of maps and the strengths and weaknesses of each type.

B. Scale

1. Explain the scale on a map and use the scale to calculate distances.
2. Define and describe the uses of small and large scale maps.

C. Grids

1. Discuss the purpose of map grids.
2. Use latitude and longitude and UTM coordinates to describe the location of various features.

V. **Resources:** By the end of this unit the student will be able to

A. Renewable/non renewable

1. Explain the difference between renewable and non renewable resources.
2. Give examples of renewable and non renewable resources.
3. Describe the environmental, economic and social aspects of resource management and use.
4. Understand the importance of an integrated and sustainable approach to resource management.

B. Energy types

1. Understand the relationship between increased energy use and the economic development of some countries.
2. Understand the impacts on the environment and the limits of non-renewable energy resource development.
3. Describe the benefits and costs of using alternate energy resources.
4. Describe the benefits of energy conservation and reduced consumption to the economy and the environment.
5. Evaluate how you can play your part in sustaining energy resources.

History - Generic Topic Outline

The focus is on world history since 1900.

General Outcomes for Provincial Level History

1. Interpret and evaluate information from artifacts, oral tradition, original documents and other primary sources.
2. Explain Canada's role and place during each period of world history.

I. The World at the Beginning of the Century

A. Explain the role of nationalism and imperialism leading up to Great War.
B. Discuss the role of technological change leading up to and during the course of World War I.
C. Discuss the importance and results of the Russian Revolution and civil war.

II. The World after World War I

A. Describe Treaty of Versailles and League of Nations and explain their importance.
B. What was the impact of war reparations on Germany?
C. Discuss rise of Japanese imperialism.
D. Discuss Indian nationalism and the problems of China in the context of imperialism.
E. What were the economic and social changes in Europe and North America in the 20s.

III. The World in the 30s: Depression & Dictatorship

A. Discuss the Great Depression including its causes and consequences.
B. Explain the rise of Hitler and the Nazi Party out of the Weimar Republic in Germany.
C. Discuss Franklin Roosevelt and the New Deal.
D. Trace Stalin's rise to power and modernization of Russia.

IV. World War II

A. What were the origins and causes of World War II?
B. Discuss the events and results of World War II.

V. The Cold War and Reconstruction

A. Discuss the origins and major events of the Cold War.
B. What was the Iron Curtain?
C. Trace Western Europe's move towards the European Union.
D. Discuss the rise of the Asian economies.

The Third World and China

A. Discuss the rise of the Peoples' Republic of China.
B. Discuss the end of the European empires and its impact on Africa and southern Asia.
C. Explain the advent of globalization.
D. Discuss the events leading to the current situation in the Middle East.

VI. Contemporary Issues

A. Discuss the rise of fundamentalism in world religions..
B. Discuss current events in a historical context.

Economics - Generic Topic Outline

The focus is on providing an introduction to some of the basic concepts of economics.
General Outcomes for Provincial Level History

I. Introduction
   A. Origins and history of economics
   B. Terminology
   C. Definitions of economic terms
   D. Scarcity
   E. Modern economic systems and their evolution - communism, socialism, capitalism,fascism

II. Production
   A. Explanation of production
   B. Factors of production (land, labour, capital, entrepreneur)
   C. Organizations of production (single ownership, partnership, corporation, state ownership, cooperatives)
   D. Large-scale production - advantages and disadvantages
   E. Monopoly - an assessment of its various forms (pool, holding company, merger) and its growth

III. Exchange
   A. The price system
   B. Money
   C. Credit and banking
   D. Marketing and transportation
   E. International trade and foreign exchange

IV. Distribution
   A. Elements of distribution, such as:
      1. National income
      2. Wage determination
      3. Interest and savings
      4. Interest rates
      5. Profits
   B. The Labour Movement (history and development)
   C. Labour problems

D. Labour legislation
    1. Collective bargaining
    2. Contracts
    3. The right to strike
    4. Strike alternatives, labour laws

V. Consumption of Goods

A. Principles of consumption
B. Saving and investing

VI. The Role of Government

A. Federal, provincial and municipal expenditures
B. Increasing public expenditures
    1. Social services
    2. National defense
    3. Crown corporations
    4. Debts - national and provincial
C. Sources of government revenue
    1. Advantages and disadvantages of various types of taxation
    2. Federal taxation
    3. Provincial taxation
    4. Municipal taxation

VII. Economics and Business

A. The balance sheet (assets and liabilities)
B. Costs and cost control
C. Reasons for business failure

VIII. Current Events

A. Domestic issues (issues of local and national concern)
B. International issues

Psychology - Generic Topic Outline

1. Critical thinking
2. Psychology as a Science
3. History of Psychology
4. Contemporary issues in Psychology
5. Biological bases of behaviour and mental processes
6. Thinking and intelligence
7. Learning and Memory
8. Social and cultural psychology
9. Theories of personality
10. Motivation and Emotion
11. Development throughout the lifespan
12. Stress, health and healing
13. Psychological disorders and treatment

I. In general terms:

A. "Natural"

B. Contrast basic concepts and major issues between contemporary and historical perspectives in psychology

II. And specifically:

C. Distinguish between conscious, subconscious and non conscious processes.

D. Describe three types of biological rhythm

E. Describe the differences between evolutionary psychology and behavioural genetics

F. Define thinking and intelligence

G. Discriminate among the various theories and models of memory

H. Explain the various models of learning

I. Describe and assess the biological, cultural and social influences on behaviour.

J. Discuss the connection between culture, gender and biology

K. List and discuss the major theories of psychology

L. Distinguish between extrinsic and intrinsic motivation and discuss the impact of motivation on love, sex, food and work.

M. Discuss the relationship between biology, culture and thought processes in the expression of emotion.

N. Understand the steps and stages in our lives.

O. Define stress and the major methods of coping with stress.

P. Describe major perspectives on psychological disorders and their treatment

Law - Core Learning Outcomes

Upon completion of this course the learner will be able to explain basic features and demonstrate an understanding of the Canadian legal system through the following learning outcomes

I. **Assess the history and purpose of law in Canadian Society by explaining and differentiating among the following terms.**
   A. Differentiate between laws and rules
   B. Explain the need for laws
   C. Differentiate between law and justice
   D. Differentiate between law and morality
   E. Identify the divisions of law
   F. Examine the historical influences on and development of Canadian law: early British law, the feudal system, common law, legal reforms, and aboriginal law

II. **Analyze the evolution of human rights and how this relates to the Canadian Constitution through the following**
   A. Discuss the BNA Act, the Statute of Westminster, and the Bill of Rights as it relates to the evolution of human rights
   B. Identify the various sections of the Canadian Charter of Rights and Freedoms (CCORAF), including the reasonable limits clause and notwithstanding clauses
   C. Compare and contrast the federal and provincial divisions of power
   D. Describe the methods of enforcing rights and freedoms and explain how this relates to rights guaranteed by the CCORAF and human rights legislation and grounds for discrimination

III. **Examine how the federal government is structured and relate it to how new laws are made**
   A. Explain what roles the executive, legislative, and judicial branches of the federal government each have in the formation of law
   B. Describe the steps as to how a federal law is passed
   C. Identify the various levels within the Canadian federal and provincial court systems
   D. Analyze the role of individuals and interest groups in creating new laws

IV. **Classify the various types of Canadian law**
   A. Identify and explain sources of Canadian law: common, statute, and constitutional
   B. Identify the categories of law: international, domestic, substantive, procedural, public, and private

V. **Examine the nature of crime**
   A. Summarize key aspects of the Criminal Code
   B. Classify "summary, indictable, and hybrid" offences

C. Differentiate the elements of a criminal offense: actus reus and mens rea
D. Identify "parties" to an offence
E. Explain the criminal court system

VI. Examine the process of police investigation, arrest, and bringing the accused to trial
A. Discriminate the levels of police: federal, provincial, municipal, aboriginal
B. Explain key features of a police investigation and the identification and collection of evidence including the following steps
i. arrest and detention procedures
ii. legal rights and bail procedures

VII. Differentiate among the following Criminal Offences
A. offences against the person and property
B. other offences, including drug, gambling, fraud, and mischief, driving, and prostitution

Classify and examine the following criminal defences
C. mental state defences
D. justification defences
E. other defences, including mistake of law and fact, double jeopardy, alibi, and entrapment

VIII. Examine the various roles of the following in trial procedure
A. courtroom participants and their roles
B. the role of juries and jury selection
C. presentation of evidence and types of evidence
D. charges to the jury
E. reaching a verdict

IX. Demonstrate an awareness of the process and objectives of the following in the Correctional system
A. sentencing
B. appeals and the types of traditional sentences
C. restorative justice and victims of crime
D. the provincial and federal correctional system
E. parole and pardons

IX. Recognize and differentiate key features of the youth criminal justice system through the following documents and procedures
A. the current youth justice act

B. the legal rights of youths
C. youth trial procedures
D. youth sentencing options

X. Explain and differentiate civil law disputes and resolution through the following processes
A. crime and torts
B. private law procedures
C. civil courts and trial procedures
D. civil remedies and sentencing
E. alternative dispute resolutions

XI. Differentiate and explain negligence and unintentional torts through the following legal terminologies
A. negligence, duty of care, standard of care, and causation
B. types of liability
C. the defences to negligence
D. intentional interference with the person and with property
E. the defences to intentional interference
F. defamation to character and defences to defamation to character

XII. Examine marriage, divorce, and the family in a legal framework as they relate to the following terms
A. the changing family structure
B. the essential and formal legal requirements for marriage
C. annulment, separation, access, and divorce
D. the division of family property and asset
E. spousal and child support
F. domestic contracts and common law contracts

XIII. Distinguish contract law from other types of law as they relate to the following legal terms
A. the types of contracts
B. the elements of a contract
C. invalidating factors
D. carrying out the contract
E. the sale of goods
F. consumer protectionism
G. landlord and tenant law
H. employment law

Law - Non-Core Outcomes

I. Identify and explain key legal features of wills, including the following
   A. the requirements for preparing a will
   B. who can make, change, and revoke a will
   C. the terms and duties associated with a will
   D. provisions in a will
   E. death without a will
   F. contesting a will

II. Explain how Canadian law relates to First Nations, Metis and Inuit Peoples (Aboriginal) in the following areas
   A. Identify the purpose and provisions of the current act pertaining to aboriginals
   B. Examine the history of treaty making
   C. Examine the arguments for and against recognition of aboriginal title
   D. Discuss the process of negotiating land claim agreements
   E. Describe the relationship of the present Constitution to aboriginal and treaty rights.

III. Explain Canadian emigration and immigration law including the following events and issues
   A. the main events in the history of immigration and immigration policy and law
   B. the main provisions of the current act pertaining to immigrants
   C. the terms associated with immigration and emigration
   D. the 'points system' for selecting immigrants
   E. how refugee claims are made and decided upon
   F. the appeals procedures
   G. Identify key issues in Canadian immigration law

IV. Discuss current law as it relates to the environment with consideration of
   A. major legal, social, and economic issues related to protecting the environment
   B. how tort law is applicable to protecting the environmental
   C. Canada's current environmental protection act
   D. Canada's law as it relates to parks and endangered species
   E. the need for international cooperation and laws
   F. the effect of globalization on Canadian law

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.

COMMITTEE MEMBERSHIP

STEERING COMMITTEE

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

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