Ⓥ Ontario

The Ontario Curriculum
Grades 11 and 12

Interdisciplinary Studies

2 0 0 2

Contents

Introduction

The Ontario Curriculum, Grades 11 and 12: Interdisciplinary Studies, 2002 will be implemented for students in Ontario secondary schools in September 2002.

This document is designed for use in conjunction with *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000*, which contains information relevant to all disciplines in the curriculum and is available both in print and on the ministry's website at http://www.edu.gov.on.ca.

The Place of Interdisciplinary Studies in the Curriculum

Our world is increasingly interconnected and interdependent. Communications networks exchange information around the globe, creating new forms of collaboration and transforming the nature of work and learning. New areas of study develop to advance human knowledge and respond to the challenges of our changing world with insight and innovation. These include areas that often combine or cross subjects or disciplines, such as space science, information management systems, alternative energy technologies, and computer art and animation.

Students today face an unprecedented range of social, scientific, economic, cultural, environmental, political, and technological issues. To deal with these issues, they first need competencies derived from discrete disciplines. The following are some examples:

- An interdisciplinary studies course in hospitality management would integrate studies in marketing and hospitality to help students understand the relationship among marketing practices, the local economy, and standards and innovative practices of the hospitality industry. In such a course, students might prepare a research report comparing successful and unsuccessful ventures into regional, national, and international tourist ventures, and analyse the impact of quality improvement on the financial health of a hotel organization.

- An interdisciplinary studies course that introduces students to information studies would integrate studies in history, philosophy, and science to develop an understanding of the human need to use information to communicate knowledge, scholarship, and values in a global society. In such a course, students would use a variety of inquiry and research methods to analyse the evolution and impact of information and information technologies on society, and to report on effective ways to use knowledge institutions such as libraries and postsecondary institutions to support community involvement, future employment, and lifelong learning.

- An interdisciplinary studies course that introduces students to biotechnology would integrate studies in biology and chemistry that are relevant to biotechnology to investigate biotechnology developments and careers in such diverse fields as health care, agriculture, forestry, and marine life. In such a course, students would research key trends and evaluate the economic, political, social, cultural, environmental, and ethical issues raised by biotechnology. They would apply their findings to assess the impact of biotechnological products on their local community.

- An interdisciplinary studies course in small business operations would integrate studies in technological design and business entrepreneurship to enable students to address the specific needs of an identified market. In such a course, students would analyse needs, design and develop both prototypes and finished products (e.g., a business plan in electronic format that uses arresting graphics and effective hypertext links similar to business plans used by international enterprises), and apply entrepreneurial and design skills either to school and community projects or to potential employment ventures. Both their academic and applied work would help students recognize their strengths and skills for current and future employment.

To deal with today's issues, students also require interdisciplinary[1] skills that focus on the issues themselves, especially skills related to the research process, information management, collaboration, critical and creative thinking, and technological applications. Students need to know new methods and forms of analysis, interpretation, synthesis, and evaluation that will allow them to build on skills acquired through the core curriculum. Interdisciplinary practitioners can use modern systems-thinking and systems-design[2] approaches to investigate how lasting solutions take into account all external and internal factors. Using models and prototypes, students can simulate ideas and test variables to produce new products or perspectives or find and implement solutions that go beyond established disciplines.

To make sense of the growth and often disparate nature of data and information, students must become *information literate.*[3] To do this, they must be able to combine diverse models of research and inquiry, integrate a range of information-management skills and technologies, and apply the processes of information organization, storage, and retrieval to new situations and across many disciplines. Consequently, it is important to recognize that the skills, knowledge, insights, and innovations of the discipline of information studies are central to interdisciplinary work.

Students with well-developed information studies skills and knowledge will have increased marketability in a variety of careers. For instance, biology and chemistry graduates who know how to use global networks for scientific research to retrieve information and manage data will have greater opportunities for work in research labs. In the same way, graduates of economics, history, and political science who have taken courses requiring them to use information systems, online databases, and advanced research methods should have increased employment opportunities.

---

1. For the purposes of this document, the term *interdisciplinary* is used to describe an approach to learning and knowledge that integrates and benefits from the understanding and application of the approaches of different subjects and disciplines. The course expectations in this document reflect the following approaches: *multidisciplinary* approaches where the subjects or disciplines are connected through a theme, issue, problem, or research question; *interdisciplinary* approaches where a theme, issue, problem, or research question defines the approach taken and directs the attempt to seek a synthesis across subject/discipline boundaries; *transdisciplinary* approaches where real-life contexts direct learning that goes beyond particular subjects or disciplines.

2. *Systems thinking* is the method used to systematically analyse how all internal and external factors, both real and hypothetical, related to systems or organizations interact to create results (e.g., an analysis of the many interrelated factors – social, political, economic, and cultural – related to creating and promoting a new museum exhibition). *Systems design* is a set of methods, activities, and technologies (e.g., use of models and prototypes) for applying systems thinking in order to create and describe new solutions to significant issues or problems.

3. *Information literacy* is the ability to access, select, gather, critically evaluate, and communicate information in all disciplines, and to use the information obtained to solve problems, make decisions, develop knowledge, and create new ideas and personal meaning.

When preparing for postsecondary study, apprenticeship, and the world of work, students also need general, transferable abilities, such as the skills of effective team building, leadership, and collaborative decision making. As students enter the world of work, either independently in new ventures or interdependently as part of project teams, they will also need to be enterprising and flexible.

In interdisciplinary studies courses, students consciously apply the concepts, methods, and language of more than one discipline to explore topics, develop skills, and solve problems. These courses are intended to reflect the linkages and interdependencies among subjects, disciplines, and courses and their attendant concepts, skills, and applications, and are more than the sum of the disciplines included. In an unpredictable and changing world, interdisciplinary study encourages students to choose new areas for personal study and to become independent, life-long learners who have learned not only how to learn but also how to assess and value their own thinking, imagination, and ingenuity in decision-making situations.

The goal of the interdisciplinary studies program in Grades 11 and 12 is to ensure that students:

- build on and interconnect, in an innovative way, concepts and skills from diverse disciplines;
- develop the ability to analyse and evaluate complex information from a wide range of print, media, electronic, and human resources;
- learn to plan and work both independently and collaboratively;
- are able to apply established and new technologies appropriately and effectively;
- use inquiry and research methods from diverse disciplines to identify problems and to research solutions beyond the scope of a single discipline;
- develop the ability to view issues from multiple perspectives to challenge their assumptions and deepen their understanding;
- use higher-level critical- and creative-thinking skills to synthesize methodologies and insights from a variety of disciplines and to implement innovative solutions;
- apply interdisciplinary skills and knowledge to new contexts, real-world tasks, and on-the-job situations and thus develop a rich understanding of existing and potential personal and career opportunities;
- use interdisciplinary activities to stimulate, monitor, regulate, and evaluate their thinking processes and thus learn how to learn.

Interdisciplinary studies courses are appropriate for students with diverse abilities, interests, and learning styles, ranging from those who may need assistance in meeting diploma requirements to those enrolled in specialized programs of study such as technology or the arts. They will help students who are preparing to enter the workplace, as well as those who are planning to go on to study at a college or university. These courses reinforce students' general skills in a wide range of academic and applied contexts.

In their focus on real-life contexts, interdisciplinary studies courses tend to be highly motivating. They help students develop their knowledge and skills as a result of working on meaningful projects, which are often linked to the community. They also provide opportunities for students to explore issues and problems that interest them from a variety of perspectives.

Cooperative education courses can easily be incorporated into interdisciplinary studies courses to help students make the transition between school and the world of work. An increasing number of colleges and universities in Ontario, in other parts of Canada, and around the world offer interdisciplinary studies programs at the postsecondary and graduate levels.

The Program in Interdisciplinary Studies

Overview

The interdisciplinary studies program is one of a number of specialized programs that can provide students with a particular curriculum focus to help them meet diploma requirements and make the transition to postsecondary destinations.[4] The following interdisciplinary studies courses are offered in Grades 11 and 12: Interdisciplinary Studies, Grade 11, Open; Interdisciplinary Studies, Grade 12, University Preparation; and Interdisciplinary Studies, Grade 12, Open.

Interdisciplinary studies courses provide students with opportunities to understand the diverse perspectives of and the links among discrete subjects/disciplines and to develop their knowledge and skills beyond the scope of individual disciplines to solve problems, make decisions, and present new findings. Students will integrate general interdisciplinary concepts, skills, models, resources, technologies, and strategies with specific content and approaches from diverse areas of the curriculum, which can be adapted to reflect the context of the specific interdisciplinary studies courses or packages of courses. An important emphasis will be placed on developing information literacy, applying comprehensive research skills and knowledge, and synthesizing methodologies and insights from a variety of disciplines to develop critical- and creative-thinking skills.

Interdisciplinary studies courses can be offered in two models: single-credit interdisciplinary studies courses and interdisciplinary studies packages of courses, as outlined below. Students may take a maximum of three interdisciplinary studies courses – one each of Interdisciplinary Studies, Grade 11, Open; Interdisciplinary Studies, Grade 12, University Preparation; and Interdisciplinary Studies, Grade 12, Open. This restriction applies to all courses, whether they are single-credit interdisciplinary studies courses or interdisciplinary studies courses within a package.

Model A: Single-Credit Interdisciplinary Studies Courses

Model A offers single-credit interdisciplinary studies courses. In these courses, students combine *all* the expectations of the interdisciplinary studies course with a *relevant selection* of expectations from two or more courses from the same grade or the grade immediately preceding or following. Course content, instructional strategies, and assessment procedures for an interdisciplinary studies course should be designed to meet the grade-level expectations for that course. The following are two examples of interdisciplinary studies courses, one open and one university preparation course:

- *Applied Journalism, Grade 11, Open*. This course combines expectations from Interdisciplinary Studies, Grade 11, Open with selected expectations from two or more other courses (e.g., Media Arts, Grade 11, Open; The Enterprising Person, Grade 11, Open; Media Studies, Grade 11, Open; and Communications Technology, Grade 11, Workplace Preparation).

---

4. See *Ontario Secondary Schools, Grades 9 to 12: Program and Diploma Requirements, 1999* (OSS), section 7.4.

- *Archaeological Studies, Grade 12, University Preparation.* This course combines expectations from Interdisciplinary Studies, Grade 12, University Preparation with selected expectations from two or more other courses (e.g., Canada: History, Identity, and Culture, Grade 12, University Preparation; Classical Civilization, Grade 12, University Preparation; Earth and Space Science, Grade 12, University Preparation; Introduction to Anthropology, Psychology, and Sociology, Grade 11, University/College Preparation; and Mathematics of Data Management, Grade 12, University Preparation).

The discipline-based expectations of the "other" courses provide an appropriate context and content for developing practical applications or for exploring topics and themes using an interdisciplinary approach. In single-credit interdisciplinary studies courses, only achievement of the interdisciplinary studies expectations will be evaluated. Students are not expected to achieve any of the expectations from the other courses, nor will any credit be given for meeting these expectations. Students may thus take both the interdisciplinary studies course and the courses from which expectations were selected for the interdisciplinary studies course without concern about duplication.

Model B: Interdisciplinary Studies Packages of Courses

Model B offers interdisciplinary studies packages of courses worth from two to five credits. In these packages, students combine all the expectations of the interdisciplinary studies course with all the expectations of two or more additional full- or half-credit courses from the same grade or the grade immediately preceding or following. (If, for example, a student wishes to take a Grade 12 open interdisciplinary studies package of courses that requires a biology course, he or she would have to take the Grade 11 college preparation biology course, since there is no Grade 12 college preparation biology course.) In all packages, course content, instructional strategies, and assessment procedures for the interdisciplinary studies course should be designed to meet the grade-level expectations for that course. The following are two examples of inter-disciplinary studies packages of courses, one open and one university preparation:

- *Applied Design, Grade 11, Open.* This package of courses consists of all the expectations from Interdisciplinary Studies, Grade 11, Open; Communications Technology, Part 1, Grade 10, Open (half credit); and Media Arts, Part 1, Grade 10, Open (half credit).

- *Biotechnology, Grade 12, University Preparation.* This package of courses consists of all the expectations from Interdisciplinary Studies, Grade 12, University Preparation; Biology, Grade 12, University Preparation; and Chemistry, Grade 12, University Preparation.

In Model B, students obtain one credit for the interdisciplinary studies course and one credit for each of the additional courses, to a maximum of five credits in total. Each course in the package is identified by its existing course code on the student's report card and on the Ontario Student Transcript. Note that if a half-credit course is to be included in an interdisciplinary studies package of courses, the school must be able to provide the matching half-credit of the full-credit course if that full-credit course is a prerequisite for any other course that the student wishes to take. However, the matching half-credit course does not have to be taken as part of a subsequent interdisciplinary studies package of courses. If a compulsory course (i.e., a course that is required for diploma purposes) is included in an interdisciplinary studies package of courses, it will count as a compulsory course. An interdisciplinary studies package of courses may include locally developed courses.[5]

---

5. See *Ontario Secondary Schools, Grades 9 to 12: Program and Diploma Requirements, 1999*, section 7.1.2, and *Guide to Locally Developed Courses, Grades 9 to 12: Approval Requirements and Procedures, 2000* for information about the development and approval of locally developed courses.

Interdisciplinary Studies Course Summary

The accompanying chart outlines the interdisciplinary studies courses that can be offered in Grades 11 and 12. Interdisciplinary studies courses are designated as "open" or "university preparation" depending on which designation is the most appropriate as a basis for combining other courses and/or expectations. Course content, instructional strategies, and assessment procedures should be designed to meet the grade-level expectations for each course.

For an interdisciplinary studies package of courses, students must satisfy the prerequisite for each of the courses in the package.

Note that single-credit courses are designated with the course code beginning with "IDC"; multiple-credit packages of courses are designated with the course code beginning with "IDP".

Courses in Interdisciplinary Studies, Grades 11 and 12

Grade	Course Name	Course Type	Course Code	Prerequisite
11	Interdisciplinary Studies	Open	IDC3O	None
			IDP3O	The prerequisite for each of the courses in the package
12	Interdisciplinary Studies	University	IDC4U	Any university or university/ college preparation course
			IDP4U	The prerequisite for each of the courses in the package
12	Interdisciplinary Studies	Open	IDC4O	None
			IDP4O	The prerequisite for each of the courses in the package

A student could include a cooperative education course with a single-credit interdisciplinary studies course or with a multiple-credit interdisciplinary studies package of courses for an additional one or two credits. No additional credit for cooperative education courses has been added to the credit value of the samples of interdisciplinary studies courses included in this document.

A Note About Credits. Courses in Grades 11 and 12 are designed to be offered as full-credit courses. However, half-credit courses may be developed for specialized programs, such as school–work transition and apprenticeship programs, as long as the original course is not designated as a requirement for entry into a university program. Individual universities will identify the courses that are prerequisites for admission to specific programs. Such courses must be offered as full-credit courses to ensure that students meet admission requirements.

In Grades 9–12, half-credit courses, which require a minimum of fifty-five hours of scheduled instructional time, must adhere to the following conditions:

- The two half-credit courses created from a full course must together contain all the expectations of the full course, drawn from all the strands of that course and divided in a manner that best enables students to achieve the required knowledge and skills in the allotted time.
- A course that is a prerequisite for another course in the secondary curriculum may be offered as two half-credit courses, but students must successfully complete both parts of the course to fulfil the prerequisite. (Students are not required to complete both parts unless the course is a prerequisite for another course that they wish to take.)

- The title of each half-credit course must include the designation Part 1 or Part 2. A half-credit (0.5) will be recorded in the credit-value column of both the report card and the Ontario Student Transcript.

Boards will ensure that all half-credit courses comply with the conditions described above and will report all half-credit courses to the ministry annually in the School September Report.

Teaching Approaches

The nature of the interdisciplinary studies curriculum calls for a variety of teaching/learning strategies to help students find relationships among disciplines. Teachers will use their professional judgement to decide which instructional methods will be most effective in promoting the learning of the knowledge and skills described in the expectations and in meeting the needs of students.

The interdisciplinary studies curriculum emphasizes active investigation of issues from diverse perspectives. Using a variety of research methods and a range of print, media, electronic, and human resources, students are encouraged to investigate the answers to essential questions, develop critical- and creative-thinking skills, synthesize methodologies and insights, and practise what they have learned in familiar and unfamiliar contexts. It is therefore important for students to actively participate in and reflect on the diversity of teaching/learning approaches used in various disciplines: activity-based strategies, arts-based strategies, cooperative learning strategies, direct instruction strategies, independent learning strategies, inquiry and research models, strategies based on learning styles, technological applications, and thinking skills strategies. In combination, such approaches promote the acquisition of knowledge, foster positive attitudes towards learning, and encourage students to become lifelong learners.

Innovative approaches to teaching and learning will encourage students to create and communicate new ideas, extend personal meaning, and develop innovative solutions. These approaches may involve collaborative planning and implementation by teachers and teacher-librarians; innovative leadership by administrators; cooperative models that link subjects in a structured way; team teaching, flexible scheduling, and creative timetabling; and planning, implementation, and assessment in a variety of settings (e.g., the classroom, school library, community, and workplace). Strong linkages to the communities inside and outside the school are also essential to an effective interdisciplinary curriculum. Such linkages can be accomplished through cooperative education programs and/or work experience opportunities in the community and through connections with community services agencies, postsecondary institutions, and members of the broader community who engage in interdisciplinary products and applications.

Curriculum Expectations

The expectations identified for interdisciplinary studies courses describe the knowledge and skills that students are expected to develop and demonstrate in their class work, on tests, and in various other activities on which their achievement is assessed and evaluated. The expectations focus on the development and application of the general skills of analysis, collaboration, synthesis, and application, as well as diverse research and information skills and methodologies that are used in all disciplines to solve problems and discover relationships. Themes, projects, or issues in specific areas or on specific topics can be developed from the expectations.

Two sets of expectations are listed for each strand, or broad curriculum area, of each course. The overall expectations describe in general terms the knowledge and skills that students are expected to demonstrate by the end of each course. The specific expectations describe the expected knowledge and skills in greater detail. The specific expectations are organized under subheadings that reflect particular aspects of the required knowledge and skills and that may serve as a guide for teachers as they plan learning activities for their students. The organization of expectations in strands and subgroupings is not meant to imply that the expectations in any one strand or group are achieved independently of the expectations in the other strands or groups.

Many of the expectations are accompanied by examples, given in parentheses. These examples are meant to illustrate the kind of skill, the specific area of learning, the depth of learning, and/or the level of complexity that the expectation entails. They are intended as a guide for teachers rather than as an exhaustive or mandatory list.

A few generic expectations are repeated in courses for different grades when the same knowledge and/or skills are important in each course. However, the course content, instructional strategies, and assessment procedures should be designed to meet the grade-level expectations for the interdisciplinary studies course.

Strands

The overall and specific expectations in interdisciplinary studies are organized in three distinct but related strands:

- *Theory and Foundation.* To establish links among disciplines that will extend their knowledge and ability to solve problems beyond the scope of the individual disciplines, students must investigate the skills, knowledge, and structures of those disciplines, as well as foundational skills and knowledge about the methods and approaches of interdisciplinary studies. By examining interdisciplinary theories, perspectives, and applications, students can develop essential skills and understanding that will help them collaborate and communicate effectively, plan real-life tasks and products, and achieve a deeper understanding of issues.

- *Processes and Methods of Research.* As their understanding of the approaches of interdisciplinary studies develops, students are increasingly able to compare and apply a variety of inquiry/research processes and technologies to identify questions to be answered, solve problems, synthesize findings, and generate new ideas. They learn to develop systematic research skills, focusing on the analysis and synthesis of the information they find in a wide range of resources.

- *Implementation, Evaluation, Impacts, and Consequences.* As their ability to analyse issues and synthesize diverse kinds of information develops, students are better able to evaluate their research findings. They learn to work both collaboratively and independently on real-life tasks to produce innovative interdisciplinary products. Students can investigate the impact of interdisciplinary studies on their personal development and career opportunities and apply strategies related to different disciplines to solve problems and to discover new relationships and possibilities.

Descriptions of Sample Courses

The following descriptions are samples of possible single-credit courses and multiple-credit packages that could be offered in interdisciplinary studies. They are provided to guide, but by no means limit, teachers in the designing of interdisciplinary studies courses and packages. Teachers may develop other interdisciplinary studies courses using courses authorized by other Ontario curriculum policy documents, as long as they develop the courses in accordance with the policies outlined in this curriculum policy document. Approval as locally developed courses is not required for such courses, nor for the sample courses and packages of courses that are described below. However, approval of any locally developed course must be obtained before the course is included in an interdisciplinary studies package of courses, or before expectations from it are included in a single-credit interdisciplinary studies course. This approval must be obtained as outlined in the ministry's policy document entitled *Guide to Locally Developed Courses, Grades 9 to 12: Approval Requirements and Procedures, 2000.*

Model A: Samples of Single-Credit Interdisciplinary Studies Courses

Note: There is no prerequisite for any of the Grade 11 or 12 open courses listed below. The prerequisite for the Grade 12 university preparation courses is any university or university/ college preparation course.

Applied Journalism, Grade 11, Open
Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 11, Open with selected expectations from two or more other courses (e.g., Media Arts, Grade 11, Open; The Enterprising Person, Grade 11, Open; Media Studies, Grade 11, Open; Communications Technology, Grade 11, Workplace Preparation).

This course will help students create informative print, media, and electronic products for school and community audiences in diverse formats (e.g., yearbook entries, newspapers, radio and television broadcasts, photojournalism, web pages). Students will investigate sources of information and compare differing perspectives on key issues, developing both a sense of news and news judgement. They will also learn editorial conventions and practices, principles of print and web design, and management skills, and will explore legal and ethical uses of information that is made public, as well as journalism careers.

Faith, Belief, and Imagery, Grade 11, Open
Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 11, Open with selected expectations from two or more other courses (e.g., Visual Arts, Grade 11, Open; World Religions: Beliefs and Daily Life, Grade 11, Open; Philosophy: The Big Questions, Grade 11, Open).

This course examines the role of art and philosophy in the historical and contemporary religious expression of diverse faiths. Students will use comparative and systematic approaches to investigate and research significant themes in and philosophical questions raised by world faiths. They will examine the development of the textual sources, recurring iconography, and artistic representations associated with these faiths; analyse the interplay of faith, culture, and art to comment on the human search for meaning; and apply their findings in the creation of art works that reflect religious themes.

Information Management for Successful Living, Grade 11, Open
Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 11, Open with selected expectations from two or more other courses (e.g., Civics, Grade 10, Open; English, Grade 11, Workplace Preparation; Career Studies, Grade 10, Open; Mathematics for Everyday Life, Grade 11, Workplace Preparation).

This course will help students develop the necessary critical- and creative-thinking skills to maximize their learning opportunities in school and in the workplace. Students will examine how knowledge is structured, developed, managed, and communicated in different disciplines and fields; investigate their rights and responsibilities related to using information as citizens in a democratic society; and analyse their mental habits and skills in using information. Practical projects will focus on how to research and communicate results in real-life situations.

Introduction to Information Studies, Grade 11, Open
Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 11, Open with selected expectations from two or more other courses (e.g., Media Studies, Grade 11, Open; World History to the Sixteenth Century, Grade 11, University/College Preparation; Twentieth-Century History: Global and Regional Perspectives, Grade 11, Open; Philosophy: The Big Questions, Grade 11, Open; Computer and Information Science, Grade 11, University/College Preparation).

This course examines the evolution and impact of information and information technologies on society, from the beginnings of writing to the development of the World Wide Web. Students will apply methods of inquiry and research used in different disciplines to investigate how knowledge and learning have been valued in different cultures and periods. They will also reflect on diverse ways of knowing and on areas of knowledge, examine the growth of knowledge institutions such as universities and libraries, and develop an understanding of the human need to create personal meaning, to use information to solve problems, and to communicate knowledge, scholarship, and values in a global society.

Sports and Society, Grade 11, Open
Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 11, Open with selected expectations from two or more other courses (e.g., Dance, Grade 11, Open; Introduction to Business, Grade 10, Open; English, Grade 11, University, College, or Workplace Preparation; Healthy Active Living Education, Grade 11, Open).

This course explores the role of sports and athletics in history and in various cultures. Using diverse resources and research methods, students will analyse the depiction of sports and health in media and literature and will examine trends in the business and communication of sports-related activities. They will also explore the importance of personal fitness and healthy living, the relationship between amateur and professional sports, and local and provincial opportunities and careers in sports, outdoor education, and physical activity.

Archaeological Studies, Grade 12, University Preparation

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, University Preparation with selected expectations from two or more other courses (e.g., Canada: History, Identity, and Culture, Grade 12, University Preparation; Classical Civilization, Grade 12, University Preparation; Earth and Space Science, Grade 12, University Preparation; Introduction to Anthropology, Psychology, and Sociology, Grade 11, University/College Preparation; Mathematics of Data Management, Grade 12, University Preparation).

This course examines methods of archaeological surveying, excavating, artifact collecting, and field interpretation. Students will review the history of archaeology and investigate the development of archaeological theory. Using diverse research methods and field study, they will also examine archaeological evidence in local, national, and/or international museums and sites; learn to analyse archaeological materials, apply data management skills, and create field maps and cross-sectional drawings of archaeological phenomena; and investigate archaeological careers and legal, ethical, and technological issues regarding archaeological investigation.

Building Financial Security, Grade 12, University Preparation

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, University Preparation with selected expectations from two or more other courses (e.g., Principles of Financial Accounting, Grade 12, University/College Preparation; Analysing Current Economic Issues, Grade 12, University Preparation; Mathematics of Data Management, Grade 12, University Preparation; Challenge and Change in Society, Grade 12, University/ College Preparation).

This course investigates financial management, capital markets, and ways in which capital is acquired. Students will use diverse information skills, resources, and technologies to gather information related to a variety of Canadian and international financial institutions, investigate the conceptual and mathematical foundations of increasing net worth, and examine investment in the stock market (e.g., the risks and safeguards in stock trading, stocks as investments, creating investment portfolios). They will also analyse the social impact of personal and corporate investment decisions and will learn to solve problems through theoretical investigation, systems thinking approaches, and case studies.

Issues in Human Rights, Grade 12, University Preparation

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, University Preparation with selected expectations from two or more other courses (e.g., Canadian and World Politics, Grade 12, University Preparation; Canadian and International Law, Grade 12, University Preparation; Studies in Literature, Grade 12, University Preparation; Media Studies, Grade 11, Open).

This course involves the examination of case studies related to modern human rights issues (e.g., child labour, the treatment of Japanese Canadians during World War II, the Holocaust, apartheid, genocide in Rwanda) and the exploration of individual and societal rights and

responsibilities. Students will use interdisciplinary approaches, resources, and research methods to investigate human rights themes in literature and media, and to examine the development of national and international laws that support or negate human rights. They will also analyse real-life situations and suggest solutions that demonstrate their awareness of the social contexts of those situations.

Music and Society, Grade 12, University Preparation

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, University Preparation with selected expectations from two or more courses (e.g., Music, Grade 12, University/College Preparation; World History: The West and the World, Grade 12, University Preparation; Studies in Literature, Grade 12, University Preparation; Introduction to Anthropology, Psychology, and Sociology, Grade 11, University/College Preparation; Technological Design, Grade 12, University/College Preparation).

This course explores the role that music plays in the aesthetic, cultural, social, religious, and political life of past and contemporary societies around the world. Using an interdisciplinary approach, students will examine such topics as the evolution of specific musical forms and styles, the role of the musician, the development of musical instruments and ensembles, the importance of music in ritual and storytelling, the relationship of non-Western and Western musical traditions, and the influence of music on literature and other arts. This course also introduces resources, research methods, and case studies related to the field of musicology. Students studying music or building musical instruments in a technical design course will find this course of particular interest.

Studies in Education, Grade 12, University Preparation

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, University Preparation with selected expectations from two or more other courses (e.g., Advanced Learning Strategies: Skills for Success After Secondary School, Grade 12, Open; Aboriginal Beliefs, Values, and Aspirations in Contemporary Society, Grade 11, College Preparation; Classical Civilization, Grade 12, University Preparation; Issues in Human Growth and Development, Grade 12, University/College Preparation).

This course will help students understand the personal and societal role of schooling and education. Using interdisciplinary approaches, resources, and research methods, students will examine the history of education in various societies and cultures and the contribution of key educational theorists and practitioners. They will also compare learning theories and teaching strategies used in various disciplines, investigate learning opportunities in Canada and around the world, research education-based careers, and assess their own plans for lifelong learning. Students planning to pursue university programs in education will find this course of particular interest.

Utopian Societies: Visions and Realities, Grade 12, University Preparation

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, University Preparation with selected expectations from two or more other courses (e.g., Visual Arts, Grade 12, University/College Preparation; World History: The West and the World, Grade 12, University Preparation; Classical Civilization, Grade 12, University Preparation; Studies in Literature, Grade 12, University Preparation; Challenge and Change in Society, Grade 12, University/College Preparation; Philosophy: The Big Questions, Grade 11, Open; World Religions: Beliefs, Issues, and Religious Traditions, Grade 11, University/College Preparation).

This course provides students with opportunities to use a wide range of information resources and research skills to analyse the purposes, features, and impact of significant historical and fictional designs for perfecting society. Using an interdisciplinary approach, students will explore how utopian fiction and experiments (e.g., Robert Owen's model industrial town of New Lanark, Scotland) question the assumptions of past and current societies. Students will also assess the influence, success, and failure of utopian solutions to effect change and to produce a just society, and will then present their own vision of the future.

Aging and Society, Grade 12, Open

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, Open with selected expectations from two or more other courses (e.g., Challenge and Change in Society, Grade 12, University/College Preparation; Child Development and Gerontology, Grade 12, College Preparation; Healthy Active Living Education, Grade 12, Open; Studies in Literature, Grade 12, College Preparation).

This course explores issues related to aging in modern Canadian society. Using interdisciplinary sources and methodologies, students will examine a wide range of gerontological issues such as cultural perspectives on aging and the elderly; the role of healthy living and health care; the provision of housing, retirement, and financial security; the particular concerns of men and women; the prevention of elder abuse and isolation; and end-of-life care. Students will be encouraged to work with aging adults to address real-life issues in their communities.

Architectural Studies, Grade 12, Open

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, Open with selected expectations from two or more other courses (e.g., Visual Arts, Grade 12, University/College Preparation; World Geography: Urban Patterns and Interactions, Grade 12, College Preparation; Classical Civilization, Grade 12, University Preparation; Mathematics for Everyday Life, Grade 12, Workplace Preparation).

This course introduces students to the field of architecture and will help them understand how they can affect their physical environments in positive ways. Students will explore how architecture, landscaping, and urban planning relate to each other and will analyse the social, economic, and political impact of key examples of architectural design from a variety of cultures and periods. Using diverse resources and research methods, they will investigate the training of architects today and in the past, required competencies from different disciplines such as mathematics and geography, and career opportunities related to architecture.

Information and Citizenship, Grade 12, Open

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, Open with selected expectations from two or more other courses (e.g., Issues of Indigenous Peoples in a Global Context, Grade 12, University/College Preparation; Canadian and International Law, Grade 12, University Preparation; Communications Technology, Grade 12, University/College Preparation).

This course explores Canadian and international law and policy regarding the use of information in society. Students will analyse historical and contemporary sources from a variety of disciplines to determine specific legal issues arising from society's use of information. They will investigate criminal laws and procedures regarding privacy and security, including those involving patents, copyright, and intellectual property. They will also examine the access to and creation, storage, and use of information for private and public purposes, and will apply methods of inquiry and research used by legal practitioners to solve problems.

Information Management and Community Leadership, Grade 12, Open

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, Open with selected expectations from two or more other courses (e.g., Entrepreneurial Studies: Venture Planning, Grade 12, College Preparation; Recreation and Fitness Leadership, Grade 12, College Preparation; Challenge and Change in Society, Grade 12, University/College Preparation).

This course develops information-based knowledge and skills that prepare students for leadership in society. Students will focus on the use of technological resources and applications to plan, implement, communicate, and assess appropriate activities and programs in the local community, such as recreational and fitness events, art exhibitions and promotion, business enterprises, and civic presentations. They will also learn to manage a wide range of school, community, and global resources and will examine the social contexts and potential opportunities for providing leadership to diverse groups and ages.

Learning and Mathematics, Grade 12, Open

Credit value: 1

This course combines the expectations for Interdisciplinary Studies, Grade 12, Open with selected expectations from two or more other courses (e.g., Advanced Learning Strategies: Skills for Success After Secondary School, Grade 12, Open; Issues in Human Growth and Development, Grade 12, University/College Preparation; College and Apprenticeship Mathematics, Grade 12, College Preparation).

This course provides an introduction to the learning and teaching of mathematics. Students will analyse the ways in which people acquire mathematical knowledge and skills, including their own and others' learning styles, the conceptual stages in learning mathematics, the visual representation of data, the use of models and manipulatives, and the technological communication of mathematical situations. They will also tutor younger students to explore the methods of early childhood and elementary teaching, and they will investigate career opportunities in this field. Students planning to pursue university and college programs in education will find this course of particular interest.

Model B: Samples of Interdisciplinary Studies Packages of Courses

Note: For all of the following packages, students must satisfy the prerequisite for each of the courses in the package.

Applied Design, Grade 11, Open
Credit value: 2

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 11, Open, as well as all the expectations from the following two component courses: Communications Technology, Part 1, Grade 10, Open (half credit); Media Arts, Part 1, Grade 10, Open (half credit). (See the policy on half-credit courses in packages of courses described on page 7 and the general policy on half-credit courses on pages 8 and 9.)

This package of courses will help students apply design concepts and current communications technologies as they create a variety of media and multimedia projects for a variety of audiences. Students will use diverse information-management strategies to research examples of uses (both successful and unsuccessful) of the elements and principles of design and will learn how to use these elements and principles to create original designs for such products as brochures, posters, exhibits, fashion projects, animated films, magazines, and web pages.

Community Environmental Leadership, Grade 11, Open
Credit value: 5

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 11, Open, as well as all the expectations from the following five component courses: English, Grade 11, University, College, or Workplace Preparation; Career Studies, Grade 10, Open (half credit); Civics, Grade 10, Open (half credit); Healthy Active Living Education, Grade 11, Open (Outdoor Focus); Living and Working with Children, Grade 11, College Preparation.

This package of courses focuses on four main themes: developing community living skills, relating to the natural world, developing leadership skills, and living responsibly on this earth. Students will learn about ethical decision making and about the political process by conducting interdisciplinary research on different environmental issues. They will also explore their local bioregion and run an appropriate outdoor environmental education program for elementary students.

Faith and Culture, Grade 11, Open
Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 11, Open, as well as all the expectations from the following two component courses: English, Grade 11, University, College, or Workplace Preparation; World Religions: Beliefs and Daily Life, Grade 11, Open.

This package of courses examines the relationship between religious and cultural expression in daily life. Students will compare a wide variety of scriptures and interpretations of scriptures as they examine such themes as social norms, the role of religious institutions and communities, and the use of traditional and contemporary technologies to communicate message and experience. They will also research the influence of religious traditions on literary texts and will demonstrate their understanding by creating such interdisciplinary products as documentary interviews or an interactive website.

Hospitality Management, Grade 11, Open

Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 11, Open, as well as all the expectations from the following two component courses: Introduction to Marketing, Grade 11, College Preparation; Hospitality, Grade 11, College Preparation.

This package of courses will help students gain some of the skills, knowledge, and practical experience required for success in the hospitality and tourism industry. Students will examine the relationships among marketing, the local economy, and the hospitality-tourism industry, conduct interdisciplinary research into successful and unsuccessful hospitality or tourism ventures, and analyse the effects of quality improvement and its financial impact on a tourism organization. An integral part of the course will be work experience in local hospitality and tourism venues.

Local Field Studies and Community Links, Grade 11, Open

Credit value: 4

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 11, Open, as well as all the expectations from the following three component courses: Healthy Active Living Education, Grade 11, Open (Outdoor Focus); The Environment and Resource Management, Grade 12, University/College Preparation; Field Ecology, Grade 11, University/College Preparation (locally developed course for which ministry approval has already been obtained).

This package of courses will develop students' interdisciplinary knowledge and skills in the areas of ecological fieldwork, data gathering, leadership, citizenship, and outdoor living. Through hands-on field studies, research activities, extended field trips, and projects with a community partner, students will plan, organize, and implement a community-based environmental project that focuses on issues such as endangered species, biodiversity, sustainability, and environmental ethics. They will also help run a residential environmental education camp for elementary students.

Small Business Operations, Grade 11, Open

Credit value: 2

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 11, Open, as well as all the expectations from the following two component courses: Technological Design, Part 1, Grade 11, Workplace Preparation (half credit); The Enterprising Person, Part 1, Grade 11, Open (half credit). (See the policy on half-credit courses in packages of courses described on page 7 and the general policy on half-credit courses on pages 8 and 9.)

This package of courses will give students the opportunity to apply entrepreneurial and design skills either to school-community projects or to potential working ventures. Students will analyse the specific needs of an identified market, research examples of successful and unsuccessful small businesses, use systems thinking approaches to design prototypes, and develop proposals for new ventures. Students will also examine their strengths and skills for current and future employment in small business operations.

Biology and Human Development, Grade 12, University Preparation

Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, University Preparation, as well as all the expectations from the following two component courses: Biology, Grade 12, University Preparation; Challenge and Change in Society, Grade 12, University/College Preparation.

This package of courses investigates the theory and applications of biology, as well as emerging social trends. Students will investigate the different perspectives of biology, sociology, and psychology on personal development and social change. They will also use diverse resources and interdisciplinary approaches to research current social issues facing humans and the environment and assess career opportunities and possible innovations in related fields.

Biotechnology, Grade 12, University Preparation

Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, University Preparation, as well as all the expectations from the following two component courses: Biology, Grade 12, University Preparation; Chemistry, Grade 12, University Preparation.

This package of courses will help students explore the developing field of biotechnology by investigating the relationships between biology and chemistry that are relevant to biotechnology. Students will use diverse resources and interdisciplinary approaches to research biotechnology developments, trends, products, and careers in such diverse fields as health care, agriculture, forestry, and marine life. They will also evaluate the economic, political, social, cultural, environmental, and ethical issues raised by biotechnology.

Children's Literature, Grade 12, University Preparation

Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, University Preparation, as well as all the expectations from the following two component courses: Studies in Literature, Grade 12, University Preparation; Visual Arts, Grade 12, University/College Preparation.

This package of courses examines the historical and contemporary development of illustrated children's books in Canada and around the world. Students will use diverse methods of interdisciplinary inquiry and research to analyse cultural, social, and literary forces in texts written for children, as well as how text is combined with a range of forms, styles, and methods of illustration and materials. Students will produce a body of work that emphasizes the relationship of, and personal approaches to, visual and literary information. They will also develop an appreciation of multicultural works that will deepen their understanding of Canada's diversity.

Information and Civilization, Grade 12, University Preparation

Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, University Preparation, as well as all the expectations from the following two component courses: Classical Civilization, Grade 12, University Preparation; World Religions: Beliefs, Issues, and Religious Traditions, Grade 11, University/College Preparation.

This package of courses examines the role that information and information systems throughout human history have played in the development of religious and cultural expression, political and

economic structures, and education systems. Students will analyse primary and secondary sources of information about past civilizations and will examine how humans have created, organized, stored, and communicated information to further knowledge and beliefs. To develop their understanding of the evolution of the human response to changes in information systems and technologies, students will complete interdisciplinary research and then present their findings in a variety of forms.

Knowledge Management and the Learning Organization, Grade 12, University Preparation
Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, University Preparation, as well as all the expectations from the following two component courses: Organizational Studies: Organizational Behaviour and Human Resources, Grade 12, University/College Preparation; Challenge and Change in Society, Grade 12, University/ College Preparation.

This package of courses focuses on management's role in helping staff learn effective ways of solving problems and making decisions, and emphasizes how managing information well and networking promote organizational learning, growth, and the ability to adapt to change. Students will examine and apply interdisciplinary strategies that business organizations use to process a wide range of information, store corporate data, share knowledge within an organization, and evaluate the impact of business decisions and innovations.

Mathematical Modelling and Applied Programming, Grade 12, University Preparation
Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, University Preparation, as well as all the expectations from the following two component courses: Mathematics of Data Management, Grade 12, University Preparation; Computer and Information Science, Grade 12, University/College Preparation.

This package of courses will help students extend the methods of the mathematics of data management to computer programming. Students will learn to design efficient algorithms and apply them to write computer programs to solve a variety of real-life problems. They will research and apply the relationships between mathematics and computer programming to explore, in creative, interdisciplinary ways, problems in computer application design, information systems design, and transportation and scheduling problems.

Arts Administration, Grade 12, Open
Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, Open, as well as all the expectations from the following two component courses: Exploring the Arts, Grade 12, Open; Organizational Studies: Managing a Small Business, Grade 12, Workplace Preparation.

This package of courses explores the relationship between the arts and business. Using diverse resources and research methods, students will examine how the arts are promoted in contemporary society and apply that knowledge to develop an interdisciplinary project involving one or more of the arts disciplines aimed at a specific target audience. They will also link artistic endeavours and business management structures effectively, demonstrating a range of creative decision-making and problem-solving strategies.

Biotechnology, Grade 12, Open

Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, Open, as well as all the expectations from the following two component courses: Biology, Grade 11, College Preparation; Chemistry, Grade 12, College Preparation.

This package of courses will help students investigate biotechnological developments, products, and careers in such diverse fields as health care, agriculture, forestry, and marine life. Students will examine how biotechnology firms operate and acquire the knowledge and skills necessary both for admission into a biotechnology program at a community college and for success in their working lives. Using diverse resources and research methods, they will also evaluate the economic, political, social, cultural, environmental, and ethical issues raised in this developing field.

Indigenous Peoples in the Information Age, Grade 12, Open

Credit value: 3

This package of courses consists of the expectations for Interdisciplinary Studies, Grade 12, Open, as well as all the expectations from the following two component courses: Issues of Indigenous Peoples in a Global Context, Grade 12, University/College Preparation; Media Studies, Grade 11, Open.

This package of courses examines, within the context of information and communications media, existing and emerging issues that are important to indigenous peoples worldwide. Students will conduct interdisciplinary research into the challenges posed by information and communications media and technologies to the social, political, economic, and cultural life and aspirations of indigenous peoples. They will analyse diverse sources of information (e.g., oral, print, and electronic) relating to indigenous peoples, and will also investigate how indigenous peoples use traditional and emergent information technologies to affirm their identity in the global economy.

Science and the Community, Grade 12, Open

Credit value: 3

This package of courses will emphasize the rights and responsibilities associated with the scientific applications of such information technologies as the Internet and databases (e.g., regarding genetic patents and organ registry). This package consists of the expectations for Interdisciplinary Studies, Grade 12, Open, as well as all the expectations from the following two component courses: English, Grade 12, Workplace Preparation; Science, Grade 12, Workplace Preparation.

This package of courses prepares students for a lifelong involvement with science-related projects and activities in their local community. Students will learn to formulate and research questions about science topics of immediate and future concern, to use practical methods for accessing a range of sources of scientific information, and to analyse, organize, and communicate scientific information effectively. They will also examine the interdisciplinary processes that will help them responsibly apply scientific solutions to problems in their community and at the national and international levels.

Interdisciplinary Studies, Grade 11, Open (IDC3O/IDP3O)

This course will help students combine the skills required for and knowledge of different subjects and disciplines to solve problems, make decisions, create personal meaning, and present findings beyond the scope of a single subject or discipline. Through individual and collaborative inquiry and research, students will analyse the connections among diverse subjects and disciplines; develop information literacy skills in analysing, selecting, evaluating, and communicating information; and become aware of a variety of resources and viewpoints on contemporary issues. They will also examine their own learning styles, relate their inquiries and research to real-life situations, and investigate career opportunities in new disciplines.

Prerequisites: for IDC3O, none; for IDP3O, the prerequisite for each of the courses in the package

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the key ideas and issues related to each of the subjects or disciplines studied;
- demonstrate an understanding of the different structures and organization of each of the subjects or disciplines studied;
- demonstrate an understanding of the different perspectives and approaches used in each of the subjects or disciplines studied;
- demonstrate the skills and strategies used to develop interdisciplinary products and activities.

Specific Expectations

Ideas and Issues

By the end of this course, students will:

– identify the fundamental ideas and issues that characterize each of the subjects or disciplines studied and critically analyse how the ideas and issues interrelate (e.g., for an interdisciplinary studies course on business ethics: the ethical use of information technology, the impact of international economic associations, ethical issues in global marketing, and the impact of entrepreneurs on a community; for an interdisciplinary course on ecotourism: geography concepts related to ways in which regional factors influence human movement and interaction, and business studies concepts related to ways in which changes in demographic and geographic characteristics influence potential tourist markets);

– describe and critically analyse key issues and themes that have interdisciplinary elements and connections in the subjects or disciplines studied (e.g., the application of mathematical concepts of patterning and sequence in music and in dance; the impact of leadership styles and personal management skills on successful tourism and hospitality ventures; the influence of political, economic, and social factors in organized sport);

– identify and describe the features and roles of information literacy in each of the subjects or disciplines studied (e.g., by investigating the effect of the "digital economy" on human relationships and the world of work, by examining how global data sharing can assist the sustainable development of natural resources);

– identify and describe, with particular reference to each of the subjects or disciplines studied, the principles and practices regarding the safe, ethical, and legal use of information and information technologies (e.g., "netiquette", personal privacy and security, copyright, software user agreements).

Structures and Organization

By the end of this course, students will:

– analyse and describe ways in which each of the subjects or disciplines studied are structured or organized (e.g., "How do the natural sciences and human sciences differ in the ways in which they classify human behaviour?", "How distinct are the different forms and genres of literary expression?", "How successfully does the Dewey Decimal System classify knowledge?");

– explain the importance of organizing and storing information and resources to each of the subjects or disciplines studied (e.g., to record the development of knowledge,

to provide access to municipal bylaws and provincial legislation, to advance scientific research around the world);

– identify and describe the ways in which information is classified, organized, stored, and retrieved in selected print and electronic forms used in each of the subjects or disciplines studied (e.g., in fictional and instructional books and periodicals, audio and multimedia forms, census and statistical reports, personal and community web pages);

– identify and describe the features of a variety of information systems (e.g., local and national online public access catalogues, search engines and directories, web portals – websites or services that offer a broad array of resources and services, such as e-mail, forums, search engines, and online retail services).

Perspectives and Approaches

By the end of this course, students will:

– analyse and describe how each of the subjects or disciplines studied views the role of personal experience in gaining knowledge (e.g., "How does our personal experience affect our perception of things?", "What personal responsibility does claiming to 'know' something carry for the 'knower'?", "What roles do culture and language play in our perceptions, understandings, and beliefs?");

– analyse and describe the different perspectives of each of the disciplines involved in an enterprise (e.g., the engineer's interest in making roads safe and the sociologist's interest in who benefits from the new roads; the journalist's interest in reporting a news story and a citizen's interest in maintaining privacy);

– identify and describe the different approaches used to investigate topics in interdisciplinary work (e.g., statistical

analyses in sociology, ethnographic studies in anthropology, case studies in business studies);

– identify and describe the features and applications of the systems-thinking approach (e.g., the identification of external and internal factors, the application of structured problem-solving strategies and models).

Skills and Strategies

By the end of this course, students will:

– demonstrate an understanding of the collaborative attitudes and skills that are valuable when researching and creating interdisciplinary products and activities (e.g., to solicit feedback on a business plan and then revise it by elaborating on its ideas; to plan a hospitality event using divergent thinking within the group to brainstorm new ideas and convergent thinking to evaluate the group's ideas systematically; to use enterprise, flexibility, and empathy to help resolve civic disputes);

– identify the conventions of language used in each of the different subjects or disciplines studied (e.g., common and less-common terminology, recurrent idioms and expressions);

– critically analyse and demonstrate the ability to apply a variety of critical- and creative-thinking strategies and models (e.g., brainstorming techniques, decision-making processes, Edward de Bono's lateral-thinking models) to help develop effective interdisciplinary products or activities;

– demonstrate an understanding of how a variety of information technologies are used to support interdisciplinary work (e.g., electronic spreadsheets to manipulate data and present information, web-based simulations to test scientific hypotheses, electronic graphic organizers to develop and link ideas).

Processes and Methods of Research

Overall Expectations

By the end of this course, students will:

- be able to plan for research, using a variety of strategies and technologies;

- be able to access appropriate resources, using a variety of research strategies and technologies;

- be able to process information, using a variety of research strategies and technologies;

- be able to assess and extend their research skills to present their findings and solve problems.

Specific Expectations

Preparing for Research

By the end of this course, students will:

– demonstrate an understanding of the purposes and types of research used in each of the subjects or disciplines studied (e.g., by distinguishing between research done in the arts and that done in the sciences, by comparing methods of research in traditional and in alternative medicine) and describe examples of effective local research projects;

– demonstrate an understanding of the skills and attitudes required for research in each of the subjects or disciplines studied (e.g., by using information-management skills such as recording, note taking, and outlining; by valuing their own learning styles and research methods and those of others; by using methods and stages of inquiry and research);

– formulate questions for a variety of purposes in interdisciplinary research (e.g., to explore a topic and theme, to identify gaps in prior knowledge, to broaden individual perspectives);

– develop and manage personal plans for interdisciplinary research, products, and activities, using a variety of print and electronic resources and organizers (e.g., using tables and charts to record their research needs; using sequence diagrams and time-management applications to check action taken and decisions made; using graphic organizers or webbing applications to analyse feedback from peers).

Accessing Resources

By the end of this course, students will:

– identify and describe physical and virtual sources of information (print, electronic, and mass media) that are relevant to interdisciplinary research (e.g., school and public libraries, national libraries and government archives, resources on the Internet, experts from museums and galleries);

– identify the conventions used in databases, catalogues, and indexes to organize information (e.g., subject headings and descriptors, cross-references and see-also references, call numbers), and apply this knowledge to locate relevant resources for interdisciplinary research, using a variety of search strategies and features (e.g., Boolean operators, key-word searches, standard and advanced features of search engines);

– locate relevant resources for interdisciplinary research, using a variety of print or electronic (online) reference material, indexes, and databases (e.g., specialized encyclopaedias and dictionaries, online periodical indexes and full-text databases, almanacs and yearbooks);

– select relevant information for interdisciplinary research within resources, using a variety of reading and critical-thinking strategies (e.g., scanning tables of contents, indexes, and chapter summaries for their organization and treatment of ideas; taking notes on key ideas; recording experimental data).

Processing Information

By the end of this course, students will:

– analyse and evaluate information from a variety of print, electronic, and mass media resources according to specific criteria, including the clarity, interest, and accuracy of the information (e.g., "How clearly is the purpose of the theological anthology stated in the preface?", "Would analysis of art works on the gallery website engage a popular audience?", "Are the historical facts regarding the Holocaust stated accurately in the film documentary?");

– identify and critically analyse ideas, arguments, bias, and stereotyping found in resources, using a variety of strategies (e.g., defining terms central to an argument, identifying relationships among data in a work of interdisciplinary studies, conducting an Internet search to investigate divergent arguments from a range of sources);

– record, sort, and organize information found in resources related to each of the subjects or disciplines studied, using a variety of print and electronic organizers (e.g., charts, relational databases, graphic organizers);

– identify the reasons for acknowledging sources and use an accepted form of documentation to record sources of information;

– synthesize findings from interdisciplinary research, using a variety of strategies and technologies (e.g., describing relationships among the data and information found in a variety of resources, showing relationships among data using graphic organizers, delivering a slide presentation on the social impact of amateur sport in Canada based on information from print and online encyclopaedias related to different disciplines).

Assessing and Extending Research

By the end of this course, students will:

– assess the quality and effectiveness of their research in comparison to similar research conducted by others (e.g., by comparing conclusions reached about common examples, by recognizing the difference between professional and student work);

– assess the effectiveness of their research in meeting the original information requirements and their research plans (e.g., "How could I adjust my method of gathering investment statistics to improve my financial results?", "What new course of action is required in the local community's ecological project?");

– develop and apply effective criteria for assessing the quality of their interdisciplinary research (e.g., by identifying how well they organized data and synthesized information to come up with new ideas);

– identify and describe possible topics and real-life applications for subsequent interdisciplinary research activities.

Implementation, Evaluation, Impacts, and Consequences

Overall Expectations

By the end of this course, students will:

- implement and communicate information about interdisciplinary endeavours, using a variety of methods and strategies;

- evaluate the quality of interdisciplinary endeavours, using a variety of strategies;

- analyse and describe the impact on society of interdisciplinary approaches and solutions to real-life situations;

- analyse and describe ways in which interdisciplinary skills relate to personal development and careers.

Specific Expectations

Implementation and Communication

By the end of this course, students will:

- create interdisciplinary products based on their own plans or designs, independently or as members of a team (e.g., a series of fashion designs for ten years in the future using traditional or digital illustrations, a health and safety plan in response to a customer survey);

- demonstrate the ability to communicate and present information effectively, using a variety of methods and forms (e.g., written and oral reports, dramatic presentations, annotated graphs and charts);

- demonstrate an understanding of the visual and textual ways of representing information in each of the subjects or disciplines studied (e.g., nutritional charts; graphs and diagrams; different geographic, political, historical, and cultural maps; stock market indexes and tables);

- identify and describe ways in which information in each of the subjects or disciplines studied is shaped and communicated by the media used (e.g., print as contrasted with multimedia; text as contrasted with visual representations; still versus moving images).

Evaluation

By the end of this course, students will:

- monitor the effectiveness of the plans for their interdisciplinary products or activities using appropriate strategies (e.g., developing criteria to measure effective implementation, checking progress according to a time line, providing progress reports on action taken and decisions made during the process);

- develop and apply effective criteria for evaluating the quality of their interdisciplinary products and activities (e.g., to identify how well their products and activities demonstrate their ability to manage data and present ideas, to synthesize ideas and approaches, or to create innovative and original explorations or solutions);

- evaluate and record the effectiveness of their interdisciplinary activities and projects, including their research sources, methods, findings, and plans (e.g., by identifying how well their activities and projects reflected characteristic methods and approaches of each of the subjects and disciplines under study; by revising their plans as problems and solutions arose; by analysing how perspectives were shaped by the sources of information used);

– evaluate the effectiveness of the collaborative strategies they used in planning and implementing interdisciplinary products and activities (e.g., by identifying how well they valued diversity, respected individual positions on an issue, considered alternatives and new connections, and actively sought feedback and constructive criticism).

Impacts and Innovations

By the end of this course, students will:

– describe and critically analyse contemporary examples of interdisciplinary products and activities that provide innovative approaches and solutions to a variety of real-life situations in the local community (e.g., the coordination of local transportation systems, the delivery of services through e-commerce and e-government, the development of community health and recreation facilities);

– identify and describe new and emerging interdisciplinary branches of learning and fields of study (e.g., biotechnology, computer animation, forensic pathology, environmental law, knowledge management);

– research, analyse, and describe the personal and social impacts of significant information-related achievements (e.g., the development of world alphabets, the evolution of paper and books, the evolution of the moving image, the creation of digital text);

– plan, conduct, and present independent interdisciplinary research, with particular reference to each of the subjects or disciplines studied, on the potential social, political, and economic impacts of emerging information technologies (e.g., the inequitable access to and ability to use technology – the "digital divide"; the impact of information systems on personal freedom; the development of technology for the disabled).

Personal and Career Development

By the end of this course, students will:

– demonstrate an understanding of selected interdisciplinary texts related to each of the subjects or disciplines studied and identify significant titles for future study;

– identify their personal information skills and those skills that require development if they are to achieve success in interdisciplinary studies (e.g., their ability to identify information needs, to locate appropriate resources, to resolve conflict within a research team, and to plan new research);

– research the importance of effective collaborative and communication skills in interdisciplinary careers related to the subjects and disciplines under study (e.g., in oceanography: building consensus among national governments or coordinating research methods);

– identify and describe employment opportunities within the local community in interdisciplinary fields related to the subjects or disciplines under study (e.g., by conducting interviews with practitioners to record changes in their fields, analysing online job descriptions for interdisciplinary connections, comparing archival and contemporary classified advertisements to determine employment opportunities that are increasing and those that are decreasing).

Interdisciplinary Studies, Grade 12, University Preparation (IDC4U/IDP4U)

This course will help students develop and consolidate the skills required for and knowledge of different subjects and disciplines to solve problems, make decisions, create personal meaning, and present findings beyond the scope of a single subject or discipline. Students will apply the principles and processes of inquiry and research to effectively use a range of print, electronic, and mass media resources; to analyse historical innovations and exemplary research; and to investigate real-life situations and career opportunities in interdisciplinary endeavours. They will also assess their own cognitive and affective strategies, apply general skills in both familiar and new contexts, create innovative products, and communicate new knowledge.

Prerequisites: for IDC4U, any university or university/college preparation course; for IDP4U, the prerequisite for each of the courses in the package

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the key ideas and issues related to each of the subjects or disciplines studied;
- demonstrate an understanding of the different structures and organization of each of the subjects or disciplines studied;
- demonstrate an understanding of the different perspectives and approaches used in each of the subjects or disciplines studied;
- demonstrate the skills and strategies used to develop interdisciplinary products and activities.

Specific Expectations

Ideas and Issues

By the end of this course, students will:

- critically analyse the major concepts and ideas held by pre-eminent theorists and researchers in each of the subjects or disciplines studied and describe their historical evolution (e.g., for an interdisciplinary studies course on mathematics and the arts: Pythagoras's notion about numbers and intervals, Leonardo da Vinci's use of perspective and ratio, and Arnold Schoenberg's use of permutations in serial music);

- describe and critically analyse the ways in which each of the related subjects or disciplines studied contributes to the understanding of key historical and contemporary issues in the interdisciplinary course (e.g., a course on the nature of work might include the history of social trends from sociology, the evolution of labour legislation from history, utopian idealism in English fiction from English, the pre-industrial focus in the Arts and Crafts movement from the arts; a course in archaeological studies might include investigation of specialized techniques from related fields, such as linguistics, palaeobotany, and palaeopathology);

- analyse and explain the importance of information and communication in past and contemporary societies (e.g., to preserve and advance knowledge, to develop trade and commerce, to organize and foster art and culture), and describe their impact on the development of each of the subjects or disciplines under study;

- identify and describe practices in Canada and around the world that effectively safeguard privacy and intellectual ownership of information in areas related to interdisciplinary studies (e.g., academic conventions, copyright legislation), and describe possible future changes to these practices.

Structures and Organization

By the end of this course, students will:

- analyse and describe ways in which an interdisciplinary studies approach questions assumptions about the structure and scope of the subjects or disciplines studied (e.g., "Do all the arts share common features and purposes?", "In what ways do all areas of knowledge benefit from historical analysis?", "How does the search for values and ethical responsibility characterize all areas of knowledge?", "Does information technology simply organize existing information or is it an interdisciplinary way of knowing?") and analyse the new structures that have emerged to broaden and advance the scope of the knowledge of individual subjects or disciplines;

– analyse and describe the past and current importance of organizing and storing information and resources to each of the subjects or disciplines studied (e.g., to regulate copyright and patents, to preserve Aboriginal oral traditions, to share original scholarship);

– assess the effectiveness of a wide variety of print and electronic forms used in each of the subjects or disciplines studied to identify, classify, organize, store, and retrieve information (e.g., reference materials, government documents and archives, scientific and academic journals, web directories);

– describe the history and role of institutions and occupations that gather, organize, and store information (e.g., libraries and librarians, postsecondary institutions and researchers, museums and curators), and explain how they meet needs and challenges in each of the subjects or disciplines studied.

Perspectives and Approaches
By the end of this course, students will:

– analyse and describe different approaches to perceiving "reality" in the subjects or disciplines studied (e.g., the role of sensory perception in the arts and in the sciences, ways in which different languages shape the cultural experiences of the people who speak them, the role of logical reasoning in matters of faith, the effect of emotion in historical inquiry, the use of intuition as a way of knowing about personal health);

– analyse and describe the different perspectives of various disciplines on the same topic as exemplified in key interdisciplinary texts (e.g., the different viewpoints of evolutionary biology, geography, and demography in *Guns, Germs, and Steel: The Fates of Human Societies* by Jared Diamond; the varying perspectives of media study,

linguistics, and sociology [social trends] in *The Gutenberg Galaxy* by Marshall McLuhan) and explain how these diverse perspectives further the investigation of issues and the solving of problems;

– analyse and describe the interdisciplinary approaches used for inquiry and research in a number of specific endeavours (e.g., experimentation and computer simulation in biotechnology; statistical analysis and case study in educational psychology) and critically analyse some of the common errors that characterize poor research (e.g., selective observation, overgeneralization, falsification of data, illogical reasoning, premature closure of inquiry);

– identify the historical development of the systems approach to solving problems and describe examples of how it has been successfully applied to solve problems in interdisciplinary endeavours (e.g., the application of systems models – physical, graphical, verbal, or mathematical representations of a system; systems paradigms – conceptual frameworks, filters, or theories used to interpret information; systems archetypes – diagrams that illustrate ways of identifying and solving problems found in different locations).

Skills and Strategies
By the end of this course, students will:

– demonstrate an understanding of the collaborative attitudes and skills that contribute to the researching and creating of interdisciplinary products and activities (e.g., the ability to encourage multiple perspectives on human development issues, to motivate others to share ideas about personal financial management strategies, to refine positions and reach consensus in designing community-based information systems, to manage conflict and delegate tasks in joint research activities);

– demonstrate the ability to use linguistic devices (e.g., analogies and metaphors) and mathematical representations (e.g., symbolic language and graphs) to make connections among the subjects or disciplines studied;

– critically analyse and demonstrate the ability to apply a variety of critical- and creative-thinking strategies and models (e.g., conceptual frameworks; sequential thinking models; simulations; models proposed by leading interdisciplinary educators, such as Heidi Hayes Jacobs) to help develop innovative interdisciplinary products or activities;

– demonstrate an understanding of how to use a variety of information technologies to support interdisciplinary endeavours (e.g., online conferences and newsgroups to gather current information, advanced search engines to extend research, web-based exhibits to present multiple perspectives);

– identify and describe strategies that national and international groups and organizations use to address interdisciplinary issues and decisions (e.g., a multinational company and a union using mediation to resolve a labour dispute; the United Nations Educational, Scientific, and Cultural Organization (UNESCO) preparing and adopting an international agreement to promote collaboration among nations through education, science, culture, and communication).

Processes and Methods of Research

Overall Expectations

By the end of this course, students will:

- be able to plan for research, using a variety of strategies and technologies;
- be able to access appropriate resources, using a variety of research strategies and technologies;
- be able to process information, using a variety of research strategies and technologies;
- be able to assess and extend their research skills to present their findings and solve problems.

Specific Expectations

Preparing for Research

By the end of this course, students will:

- demonstrate an understanding of the purposes and types of research used in each of the subjects or disciplines studied (e.g., by describing autobiographical writings of leading researchers in a variety of fields, by analysing the limitations of research in specific areas) and describe historical examples of effective research;

- demonstrate an understanding of the skills and attitudes required for research in each of the subjects or disciplines studied (e.g., by analysing the purpose and scope of research tasks; by adjusting questions, focus, and thesis throughout the research process to account for changing situations; by valuing collaborative inquiry models) and analyse the skills and attitudes evident in specific examples of effective research;

- identify and describe the critical- and creative-thinking strategies that are effective at each stage of research in each of the subjects or disciplines studied (e.g., by identifying the ways in which similar information and assumptions from different sources are analysed, checking results under variable conditions, investigating innovative sources of information, expanding the focus of investigation at strategic stages) and analyse the strategies evident in specific examples of effective research;

- formulate questions for a variety of purposes in interdisciplinary research (e.g., to develop a thesis and an argument, to challenge assumptions and biases, to find new relationships, to examine multiple perspectives) and compare the significance and effectiveness of the questions posed with those from specific examples of effective research.

Accessing Resources

By the end of this course, students will:

- identify and describe the difference between real and virtual libraries (e.g., in terms of access to materials under copyright, the quality control of available information, format differences that affect readability and understanding of texts) and describe the impact of these differences for interdisciplinary research;

- identify and describe the principles used by the creators of databases, catalogues, and indexes to organize information for retrieval (e.g., uniform entry; specific entry; and the use of broader, related, and narrower terms) and apply this knowledge to locate relevant resources for interdisciplinary research, using a variety of search strategies and features (e.g., search strings and proximate searches, controlled vocabulary searches, citation searches, bibliographies);

– locate relevant primary and secondary resources for interdisciplinary research, using a variety of print or electronic (online) reference materials, indexes, and databases (e.g., scientific papers and reports of conference proceedings, discipline-specific indexes, indexed abstracts);

– select relevant information within resources for interdisciplinary research, using a variety of reading and critical-thinking strategies (e.g., relating information from a previously known or simpler context to information in a new or more complex context; producing sectional summaries, précis, and abstracts of complex works; using knowledge of characteristic features of genres and types of books, such as history texts or scientific reports, to clarify an author's purpose and scope).

Processing Information

By the end of this course, students will:

– analyse and evaluate information from a variety of print, electronic, and mass media resources according to specific criteria, including the currency, comprehensiveness, and depth of the information (e.g., "Are the examples of genetic engineering research up to date?", "Are the perspectives of both developed and developing nations represented in the socio-economic study on global trade?", "How thorough or superficial is the newspaper article examining the impact of technology on archaeology?");

– identify and critically analyse ideas, arguments, bias, and stereotyping found in resources, using a variety of strategies (e.g., analysing fallacies in an author's argument, using a review of a text in a periodical to discover its omissions in data and information, conducting an Internet search to determine how representative samples in scientific studies are);

– record, sort, and organize information found in resources related to each of the subjects or disciplines studied, using a variety of forms and technologies (e.g., tables, concept mapping applications, bibliographic applications) and identify gaps in information requiring further research;

– record, sort, and organize sources of information in relevant footnotes, citations, endnotes, or bibliographies, using an accepted form of documentation (e.g., from a recognized stylebook such as that produced by the Modern Language Association or the American Psychological Association);

– synthesize findings from their interdisciplinary research, using a variety of strategies and technologies (e.g., combining the insights and solutions found in a variety of resources; using précis and abstracts to summarize information; finding relationships among census data on geographic, social, economic, and historical information).

Assessing and Extending Research

By the end of this course, students will:

– re-examine the comprehensiveness of their interdisciplinary research to update and modify their interdisciplinary products (e.g., formal essays, dramatic presentations, web pages with directories) in light of new findings and feedback;

– assess their effectiveness in generating new ideas in each of the subjects or disciplines studied as a result of their research (e.g., "What new direction has my research on faith communities suggested?", "How can my research encourage younger students to become interested in archaeology?");

– develop and apply effective criteria for assessing the quality of their interdisciplinary research (e.g., identify how well their research supported multiple perspectives and inclusive solutions; test the accuracy of their data by identifying how well they replicated scientific results);

– identify possible topics and real-life applications for subsequent interdisciplinary research activities, and describe how the use of both traditional and innovative methods and approaches may lead to new findings or make contributions to society.

Implementation, Evaluation, Impacts, and Consequences

Overall Expectations

By the end of this course, students will:

- implement and communicate information about interdisciplinary endeavours, using a variety of methods and strategies;

- evaluate the quality of interdisciplinary endeavours, using a variety of strategies;

- analyse and describe the impact on society of interdisciplinary approaches and solutions to real-life situations;

- analyse and describe how interdisciplinary skills relate to personal development and careers.

Specific Expectations

Implementation and Communication
By the end of this course, students will:

- create interdisciplinary products based on their own plans or designs, independently or as members of a team (e.g., a series of charts that relate demographic factors to the progress of medical care and technological advancement; a multimedia presentation that analyses changing artistic styles and social mores as portrayed in illustrations in children's books);

- demonstrate the ability to communicate and present information effectively, using a variety of methods and forms (e.g., multimedia presentations, parliamentary-style debates, formal essays);

- demonstrate an understanding of the ways in which the graphic display of quantitative information can be used to foster critical analysis and problem solving related to interdisciplinary presentations (e.g., by documenting the sources and characteristics of the data, by sequencing data to show cause and effect, by patterning data to suggest trends);

- use a variety of technological strategies and applications effectively to create interdisciplinary products or activities (e.g., gather multiple perspectives about human rights issues from diverse online databases and synthesize findings in a web-based presentation) and compare the advantages and disadvantages of using modern rather than traditional technologies;

- explain how the manipulation of information (e.g., through the use of propaganda, bias, and stereotyping) affects society, by analysing historical and contemporary examples from each of the subjects or disciplines studied.

Evaluation
By the end of this course, students will:

- monitor the effectiveness of the plans for their interdisciplinary research, products, or activities, employing the strategies used by practitioners in different subjects and disciplines (e.g., the use of advice from experts, consultative meetings with team members, electronic time-management applications, and reviews by peers);

- evaluate the effectiveness of the collaborative strategies they used in planning and implementing interdisciplinary products and activities (e.g., by identifying how well they reached consensus, fostered the leadership potential of each member, sought advice from experts in the field, and shared responsibility and recognition);

- demonstrate the ability to apply self-assessment strategies to improve their interdisciplinary products and activities (e.g., by recording evidence of how their activities and projects developed, by diagnosing their learning strengths and styles, by developing metacognitive skills such as the ability to evaluate the efficiency of their learning).

Impacts

By the end of this course, students will:

– describe and critically analyse historical and contemporary examples of interdisciplinary products and activities that apply innovative approaches and solutions to a variety of real-life situations around the world (e.g., the artistic, social, and literary contributions of the Arts and Crafts movement; the development and regulation of gene mapping and therapy; the international coordination of crime prevention and criminal justice networks);

– describe and critically analyse the contributions to society of leading practitioners who have engaged in interdisciplinary endeavours related to the subjects or disciplines studied and describe the potential impact of their work on future society (e.g., David Suzuki, biologist; Buckminster Fuller, futurist; Margaret Mead, anthropologist; Douglas Cardinal, architect);

– research, analyse, and describe the personal and social impacts of the information-related work of famous individuals (e.g., Charles Babbage, designer of the first computer; Ada Lovelace, writer of the first computer program; Alexander Graham Bell, inventor of the telephone and photophone; Melvil Dewey, creator of the Dewey Decimal Classification System; Conrad Zuse, inventor of the first programmable digital computer; Tim Berner-Lees, inventor of the World Wide Web) and assess their contributions to the subjects or disciplines studied;

– plan, conduct, and present independent, interdisciplinary research, with particular reference to each of the subjects or disciplines studied, on the potential social, political, and economic impact of emerging information technologies (e.g., the impact of technology on academic freedom, the effectiveness of literacy programs around the world, the impact of gene mapping).

Personal and Career Development

By the end of this course, students will:

– demonstrate an understanding of significant interdisciplinary texts related to each of the subjects or disciplines studied and present personal reading plans that identify, classify, and describe texts appropriate for further study;

– compare their personal information skills with those of leading practitioners in the subjects or disciplines studied (e.g., their ability to organize data from a variety of sources, to analyse an author's suppositions and premises, or to choose appropriate technology for particular purposes) and identify those skills that require development if they are to achieve success in interdisciplinary studies;

– research the importance of effective collaborative and communication skills in interdisciplinary careers related to the subjects or disciplines under study (e.g., in the validation and publication of scholarship in sociobiology, in the electronic sharing of data in paleopathology);

– identify postsecondary training requirements for and potential employment opportunities in interdisciplinary fields related to the subjects or disciplines under study (e.g., by searching trade and professional publications, consulting university calendars, or inviting guest speakers to class) and describe possible future trends and opportunities (e.g., by researching economic forecasts and futurist speculations).

Interdisciplinary Studies, Grade 12, Open (IDC4O/IDP4O)

This course emphasizes the development of practical skills and knowledge to solve problems, make decisions, create personal meaning, and present findings beyond the scope of a single subject or discipline. Through individual and collaborative inquiry and research into contemporary issues, real-life situations, and careers, students will apply the principles and skills derived from the complementary subjects and disciplines studied, evaluate the reliability of information, and examine how information technology can be used safely, effectively, and legally. They will also learn how to select strategies to define problems, research alternative solutions, assess their thinking in reaching decisions, and adapt to change as they acquire new knowledge.

Prerequisites: for IDC4O, none; for IDP4O, the prerequisite for each of the courses in the package

Theory and Foundation

Overall Expectations

By the end of this course, students will:

- demonstrate an understanding of the key ideas and issues related to each of the subjects or disciplines studied;
- demonstrate an understanding of the different structures and organization of each of the subjects or disciplines studied;
- demonstrate an understanding of the different perspectives and approaches used in each of the subjects or disciplines studied;
- demonstrate the skills and strategies used to develop interdisciplinary products and activities.

Specific Expectations

Ideas and Issues

By the end of this course, students will:

- critically analyse the major concepts and ideas held by pre-eminent theorists and researchers in each of the subjects or disciplines studied and describe their contemporary application (e.g., for an interdisciplinary studies course on education and society: Plato's use of the Socratic method, Jean-Jacques Rousseau's notion of progressive education, John Dewey's concept of learning by doing, and the educational role of elders within Aboriginal communities);

- describe and critically analyse the ways in which each of the related subjects or disciplines studied contributes to the finding of practical solutions to key contemporary issues and themes in the interdisciplinary course (e.g., a course on arts administration might include a cost analysis of a dramatic production, the implementation of inventory control of drama company assets, and the presentation of suggested marketing strategies for a new production; a course in studies in education might investigate the emphasis on particular learning styles in a variety of education systems in different cultures);

- analyse significant changes from the past in the role of information and communication in contemporary society and describe ways in which practitioners in each of the subjects or disciplines studied meet information challenges (e.g., creating new disciplines or fields of study, developing new networks for learning and sharing information, harnessing new technologies to solve problems);

- identify the principles, practices, and systems regarding the safe, ethical, and legal use of information technologies (e.g., in terms of ergonomics, personal privacy, and computer security) and describe the consequences of their appropriate and inappropriate use for each of the subjects or disciplines studied.

Structures and Organization

By the end of this course, students will:

- analyse and describe the strengths and limitations of the ways in which knowledge is classified within each of the subjects or disciplines studied (e.g., "In what ways does the classification of knowledge vary in different cultures and at different time periods?", "How do classification systems affect the knowledge we obtain, expect, or accept?", "How does interdisciplinary endeavour clarify or question classifications of knowledge?");

– identify and describe key theories – from diverse psychological, religious, and philosophical traditions – about how people structure experience and organize information to learn, think, and remember;

– identify and describe the ways in which information is classified, organized, stored, and retrieved in a wide variety of print and electronic forms used in each of the subjects or disciplines studied (e.g., periodical indexes, documentary and feature films, business reports and trade publications, commercial web pages) and describe possible future developments;

– identify and describe the features of a variety of information systems (e.g., document delivery systems, distributed learning networks, web-based commercial networks) and analyse their potential for providing practical solutions to problems in each of the subjects or disciplines studied.

Perspectives and Approaches

By the end of this course, students will:

– analyse and describe how the nature of evidence is considered in each of the subjects or disciplines studied (e.g., "What constitutes good or acceptable evidence?", "How do the following differ and how valuable is each: data, information, interpretation, belief, knowledge, and wisdom?", "What are the limits of perception in providing evidence or certainty?");

– analyse and describe the different perspectives of various disciplines on the same topic as exemplified in key interdisciplinary texts, and explain how these texts have influenced human endeavour (e.g., the influence on urban development of *The Life and Death of Great American Cities* by Jane Jacobs, the influence on health care of *On Death and Dying* by Elizabeth Kübler-Ross);

– compare the approaches used to investigate key issues, problems, and themes in interdisciplinary work (e.g., in sociology, the use of ethnomethodology to study everyday life; in literary studies, the use of biographical criticism to examine an author's life and the historical context) and critically analyse examples of effective and ineffective interdisciplinary research;

– identify the features of the systems approach to solving problems and describe examples of how it has been successfully applied to model situations and to solve problems in interdisciplinary endeavours (e.g., the classification of the skills and perspectives of participants in an endeavour, the use of simulations to identify potential problems).

Skills and Strategies

By the end of this course, students will:

– demonstrate an understanding of the collaborative attitudes and skills that contribute to the research and creation of interdisciplinary products and activities (e.g., the ability to manage conflict and delegate tasks in planning a public exhibition of school art, to test and extend ideas by role-playing diverse perspectives on environmental issues in biotechnology developments, or to identify decision points in designing a municipal facility);

– explain the role that linguistic devices (e.g., paradoxes and conundrums) and mathematical representations or techniques (e.g., Venn diagrams and Boolean operators) can play in revealing relationships among the subjects or disciplines studied;

– critically analyse and demonstrate the ability to apply a variety of critical- and creative-thinking strategies and models (e.g., concept maps, the design process,

the 4MAT system model) to help develop original interdisciplinary products or activities;

– demonstrate an understanding of how to use a variety of information technologies to support interdisciplinary work (e.g., online websites to store and share data, contact software applications to manage work and human resources, e-mail to consult experts);

– identify and describe the strategies that community organizations use to address interdisciplinary issues, problems, and decisions (e.g., a municipality responding to changing environmental concerns, an arts organization funding diverse cultural activities).

Processes and Methods of Research

Overall Expectations

By the end of this course, students will:

- be able to plan for research, using a variety of strategies and technologies;
- be able to access appropriate resources, using a variety of research strategies and technologies;
- be able to process information, using a variety of research strategies and technologies;
- be able to assess and extend their research skills to present their findings and solve problems.

Specific Expectations

Preparing for Research

By the end of this course, students will:

- demonstrate an understanding of the purposes and types of research used in each of the subjects or disciplines studied (e.g., by explaining the practical consequences of specific research projects, by analysing reasons why specific research has not produced expected results, by comparing the stages of the technical design process with those of the scientific method) and describe traditional and new methods of research;

- demonstrate an understanding of the skills and attitudes required for research in each of the subjects or disciplines studied (e.g., by identifying the types of questions that guide research, such as factual, comparative, causal, and speculative questions; by valuing diverse perspectives and personal insight) and describe specific research projects that demonstrate these skills and attitudes;

- identify and describe the critical- and creative-thinking strategies that are effective at each stage of research in each of the subjects or disciplines studied (e.g., relating prior knowledge to the information task, collecting a portfolio of exemplary projects, using divergent thinking about common assumptions, viewing information from one discipline from the perspective of another) and describe specific research projects that demonstrate these strategies;

- formulate questions for a variety of purposes in interdisciplinary research (e.g., to clarify attitudes and biases regarding specific research activity, to determine focus or perspective on a topic, to explore potential products and activities, to foster multiple perspectives) and evaluate the relevance, significance, and effectiveness of the questions posed.

Accessing Resources

By the end of this course, students will:

- identify and compare significant differences in purpose, conventions, and organization between the Dewey Decimal and Library of Congress classification systems and apply their findings to locate relevant resources using both systems;

- demonstrate the ability to use a combination of strategies to locate relevant resources for interdisciplinary research (e.g., using catalogues for subject access supplemented by shelf browsing or scanning, moving from citations in periodical and bibliographic indexes to full-text resources, using web-based directories to assess and prioritize results of key-word searches in a variety of search engines);

- locate relevant resources for interdisciplinary research, using a variety of print or electronic (online) reference materials, indexes, and databases (e.g., specialized handbooks, bibliographic indexes, trade publications, business reports);

– select relevant resources and information within resources for interdisciplinary research, using a variety of reading and critical-thinking strategies (e.g., identifying illustrations, tables, and charts that summarize ideas or findings; skimming chapters, sections, or paragraphs; interpreting and analysing diagrams and graphs).

Processing Information

By the end of this course, students will:

– analyse and evaluate information from a variety of print, electronic, and mass media resources according to specific criteria, including the validity of, authority for, and significance of the information (e.g., "In the film documentary, how valid is the argument against students' right to read?", "Who are the authors of the website that discusses the impact of technology on indigenous peoples, and what are their credentials?", "How significant are the conclusions of the study on the protection of provincial wetlands for the local community?");

– identify and critically analyse ideas, arguments, bias, and stereotyping found in resources, using a variety of strategies (e.g., investigating the relevance of examples and case studies in a work, producing an outline of the structure of an author's argument, conducting an Internet search to determine the consequences of alternative conclusions or solutions);

– record, sort, and organize information found in resources related to each of the subjects or disciplines studied, using a variety of forms and technologies (e.g., diagrams, spreadsheets, outlining applications) and focusing on providing accurate data on the source of all information;

– record, sort, and organize sources of information in relevant footnotes, citations, endnotes, or bibliographies, using an accepted form of documentation (e.g., from a recognized stylebook such as that produced by the Modern Language Association or the American Psychological Association);

– synthesize findings from their interdisciplinary research, using a variety of strategies and technologies (e.g., collaborating with members of their research team to compare the conclusions reached about a common issue treated in different resources, creating a web page linking relevant research sites around the world, adapting the findings from an interdisciplinary text on urban design for a multimedia submission to a town council).

Assessing and Extending Research

By the end of this course, students will:

– re-examine the comprehensiveness of their interdisciplinary research to date and modify their interdisciplinary products (e.g., statistical graphs and diagrams, working models, annotated bibliographies) in light of new findings and feedback;

– assess their effectiveness in finding practical approaches or solutions through their research to problems in the subjects or disciplines studied (e.g., "What lessons for community leadership can be learned from the project?", "How can my school respond to the needs of our Native students?");

– develop and apply effective criteria for assessing the quality of their interdisciplinary research (e.g., by identifying how well they made innovative and original explorations or arrived at innovative and original solutions);

– identify possible topics and real–life applications for subsequent personal interdisciplinary research activities and describe methods and approaches required for success.

Implementation, Evaluation, Impacts, and Consequences

Overall Expectations

By the end of this course, students will:

- implement and communicate information about interdisciplinary endeavours, using a variety of methods and strategies;
- evaluate the quality of interdisciplinary endeavours, using a variety of strategies;
- analyse and describe the impact on society of interdisciplinary approaches and solutions to real-life situations;
- analyse and describe how interdisciplinary skills relate to personal development and careers.

Specific Expectations

Implementation and Communication

By the end of this course, students will:

- create practical interdisciplinary products based on their own plans or designs, independently or as members of a team (e.g., sketches, technical drawings, and pro-totypes of a robotic device used in manu-facturing a consumer product; a set of dramatic scenes that illustrate techniques used by leaders to motivate individuals and teams in a variety of work contexts);
- demonstrate the ability to communicate and present information effectively, using a variety of methods and forms (e.g., video documentaries, musical compositions, mathematical models and prototypes, sci-entific demonstrations);
- demonstrate an understanding of the ways in which the graphic display of quantitative information can be used to communicate ideas with clarity, precision, and efficiency in interdisciplinary presentations (e.g., by having a well-chosen and attractive format and design, by presenting data at several levels of detail, by integrating statistical and verbal descriptions of a data set);
- use a variety of technological strategies and applications effectively to create inter-disciplinary products or activities (e.g., use online experts, discussion groups, and interactive websites to test ideas and plans);

- analyse case studies in which specific methods and technologies were used in each of the subjects or disciplines studied to communicate and receive information safely, legally, and ethically (e.g., respecting the security of computer systems and their files, identifying information sources and their copyright owner, applying health and safety procedures) and assess the effec-tiveness of the methods and technologies used.

Evaluation

By the end of this course, students will:

- monitor the effectiveness of the plans for their interdisciplinary research, products, or activities, employing the strategies and technologies used in real-life situations (e.g., by recording evidence of the chal-lenges faced and insights found, monitoring progress according to a time-management application, and holding regular conferences to check the delivery of project targets);
- evaluate the effectiveness of their presenta-tions according to specific criteria (e.g., "Is technology used appropriately and innov-atively?", "Do graphic displays of informa-tion present information clearly and precisely?", "Does the presentation deepen the audience's understanding of issues?");

– evaluate the effectiveness of the collaborative strategies they used in planning and implementing interdisciplinary products and activities (e.g., by identifying how well they sought inclusive solutions, shared goals and conflicts, structured discussions and decision-making, and tested and extended individual ideas).

Impacts

By the end of this course, students will:

– describe and critically analyse contemporary examples of interdisciplinary products and activities that apply innovative approaches and solutions to a variety of real-life situations around the world (e.g., the use of robotics in industry and commerce, the development of e-learning opportunities for remote locations);

– describe and critically analyse the potential cultural, economic, political, environmental, and technological impacts on present and future societies of interdisciplinary endeavours related to the subjects or disciplines studied (e.g., the impact of the Bauhaus movement on modern architecture, design, and the arts; of cybernetics on effective organizations; of alternative medicine on health-care systems);

– research, analyse, and describe, with particular reference to each of the subjects or disciplines studied, the personal and social impacts of significant information-related inventions and developments (e.g., moveable type, radio, television, communications satellites, the Internet);

– plan, conduct, and present independent interdisciplinary research, with particular reference to each of the subjects or disciplines studied, on the potential social, political, and economic impacts of emerging information technologies (e.g., the effect of technology on student learning and schooling, the impact of automation in the workplace, the limits of innovation in information technologies).

Personal and Career Development

By the end of this course, students will:

– demonstrate an understanding of selected interdisciplinary texts related to each of the subjects or disciplines studied and present an analysis of their reading preferences and needs, using a variety of strategies (e.g., collaborative inquiry, classification of types of texts, identification of significant authors and titles in specific genres);

– analyse their personal information skills (e.g., their ability to cope with information overload, to follow appropriate safety and privacy procedures, to synthesize findings from a variety of sources) and identify those skills that require development if they are to achieve success in interdisciplinary studies;

– research the importance of effective collaborative and communication skills (e.g., team building in new entrepreneurial ventures; joint presentations to government for new arts facilities by architects, urban planners, and social agencies) in interdisciplinary careers related to the subjects and disciplines under study;

– identify postsecondary training requirements for and potential employment opportunities in interdisciplinary fields related to the subjects or disciplines under study, using various methods (e.g., using job-search strategies on the Internet, analysing descriptions of projects in periodical sources, identifying the background and qualifications of leading practitioners) and create a personal inventory of required interdisciplinary skills for each.

Some Considerations for Program Planning in Interdisciplinary Studies

Teachers who are planning a program in interdisciplinary studies must take into account a number of important considerations. Essential information that pertains to all disciplines is provided in *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000*. The areas of concern to all teachers that are outlined there include the following:

- types of secondary school courses
- education for exceptional students
- the role of technology in the curriculum
- English as a second language (ESL) and English literacy development (ELD)
- career education
- cooperative education and other workplace experiences
- health and safety

Considerations relating to the areas listed above that have particular relevance for program planning in interdisciplinary studies are noted here.

Education for Exceptional Students. The Education Act and regulations made under the act require school boards to provide exceptional students with special education programs and services that are appropriate for their needs.

An Individual Education Plan (IEP) must be developed and maintained for each student who is identified as exceptional by an Identification, Placement, and Review Committee (IPRC). The IEP must outline, as appropriate, any modified or alternative curriculum expectations and any accommodations (i.e., the specialized support and services) that are required to meet the student's needs. The IEP must also identify the methods by which the student's progress will be reviewed. For exceptional students who are fourteen years of age or older and who are not identified solely as gifted, the IEP must contain a plan to help them make the transition to postsecondary education, apprenticeship programs, or the workplace, and to help them live as independently as possible in the community.

An IEP may be prepared for a student with special needs who is receiving special education programs and/or services but who has not been identified as exceptional by an IPRC. In planning courses in interdisciplinary studies, teachers should take into account the needs of exceptional students as set out in their IEPs.

The interdisciplinary studies curriculum reflects a wide range of areas of human knowledge and work and provides numerous opportunities for meeting the needs of exceptional students as set out in their IEPs. The diverse approaches to learning encouraged by interdisciplinary studies courses give students many opportunities to recognize and develop their personal learning styles, to practise applying concepts and skills, and to engage in learning that promotes personal growth. Exceptional students can learn how to create innovative products and enterprises that accommodate and may enhance their own circumstances. Students who use alternative technologies for collaboration and communication may find a venue for their technological talents in a variety of new interdisciplinary fields, such as online research and services.

Teachers should make appropriate accommodations and modifications for the assessment of exceptional students.

The Role of Technology in the Curriculum. Students will be expected to use a variety of computer programs that have been developed to assist students, practitioners, and researchers both in specific disciplines and in interdisciplinary work. These include simulations, multimedia resources, databases, and computer-assisted learning modules.

Information technology is especially important to interdisciplinary studies. Students must be able to readily locate and access information, and to use a variety of traditional and emerging technologies to help them develop innovative approaches to inquiry and research, project-based planning, and assessment. Students will benefit from using graphic-organizer applications as part of their systems-thinking approaches, as well as from accessing learning organizations (e.g., academic, professional, corporate) that develop and share information and models.

Students can also use electronic communication to compare their results and analyses with those of other students, as well as to consult experts throughout the world. Through online public-access catalogues, Internet websites, and CD-ROM technology, students can access primary, secondary, archival, and virtual resources. Students' technological knowledge and skills, which are highly sought-after in many careers, will be enhanced through their application across many disciplines.

Teachers should work collaboratively within and across disciplines to plan for the effective integration of computer and information technologies into interdisciplinary studies. School library programs can also promote the development of information literacy skills among all students by coordinating and supporting the collaborative planning and implementation of interdisciplinary research and technological applications.

English As a Second Language and English Literacy Development (ESL/ELD). Interdisciplinary studies courses can provide a wide range of opportunities to address the needs of ESL/ELD students. Teachers who are planning and implementing interdisciplinary studies courses collaboratively must value students' diversity, interdependence, and independence. They must recognize the interdisciplinary experience, skills, and knowledge that all students bring to the classroom and build on these strengths. Teachers should approach with sensitivity the increased emphasis on communication and real-life applications in interdisciplinary studies, especially in cooperative learning settings, so that difficulties with language do not inhibit the participation of ESL/ELD students and hinder their success. Students should be encouraged to communicate and compare their understandings in both oral and written form, using the language conventions of both interdisciplinary studies and the constituent disciplines. Where possible, teachers should use visual and interactive methods, including arts-based activities and innovative technologies, to help students make connections among specific disciplines and to help them apply interdisciplinary insights confidently in everyday life.

The courses offered in interdisciplinary studies call for extensive reading and research. In interdisciplinary studies, teachers should promote a variety of resources and technologies appropriate to the reading level of individual students. Teachers should also make appropriate accommodations and modifications for the assessment of ESL/ELD students.

Career Education. Courses in the interdisciplinary studies program help prepare students for a wide range of occupations and postsecondary programs. New interdisciplinary fields, coupled with rapidly evolving technologies, have resulted in an exciting environment in which innovation thrives and new career opportunities abound. Today's employers seek independent, life-long learners who can demonstrate skills and knowledge across many disciplines. To meet present and future career challenges, all interdisciplinary studies courses emphasize the acquisition of such general knowledge and skills as information literacy, research and inquiry skills, the ability to apply technology, creative- and critical-thinking skills, problem-solving skills, the ability to apply systems approaches to familiar and new situations, and the ability to work cooperatively in a team. Teachers can help students explore current and emerging careers and identify ways in which their involvement in interdisciplinary studies will enhance their suitability for a wide range of occupations.

Cooperative Education and Other Workplace Experiences. A cooperative education program and/or a work experience opportunity in the community will allow students to apply and develop the skills and knowledge they acquire in their interdisciplinary studies course or program. Whether a student plans to enter the workforce directly after secondary school or go on to postsecondary education or training, an experiential learning opportunity can help students make career decisions and develop the knowledge, skills, and attitudes essential in today's society.

Experiential learning may take a number of different forms to match the needs of an individual student. For example, a student enrolled in an interdisciplinary studies Applied Journalism course could participate in a one-to-four-week work experience placement with an editor or copywriter at the local newspaper. Alternatively, the student's work experience could be structured as a "virtual" work experience in which all tasks and communication among the student, teacher, and placement supervisor take place electronically. This "work experience" would be a component of the student's 110-hour credit course in Applied Journalism. A student wanting a more extensive experience could enrol in a cooperative education program and earn an additional one or two credits.

Students can combine a single-credit interdisciplinary studies course with a work experience component or a cooperative education course in either the private or public sector. For example, students taking Studies in Education could be placed in a child-care centre or school for a four-week work experience; those in Information Management for Successful Living could participate in a virtual work experience that links them with a manager of an event-planning or marketing firm; and those in Architectural Studies could be given a cooperative education placement in an architectural firm or municipal urban planning office.

Students taking an interdisciplinary studies package of courses worth from two to five credits could enhance their learning with a placement that reflects the integration of the expectations for each of the individual subjects. For example, students taking Community Environmental Leadership could be placed in an ecotourism firm; those taking Biotechnology could work in a hospital or industry laboratory; those in Arts Administration could be placed with a museum or arts council; and those in Hospitality Management could be placed in a hotel or tourist bureau.

Interdisciplinary programs worth more than one credit could also form the basis of a school–work transition program for a student entering the workforce directly after high school. School–work transition programs consist of a package of courses and experiential learning opportunities that prepare students to meet the requirements of a specific occupation or apprenticeship.

Cooperative education, work experience, and school–work transition programs must be designed to follow the guidelines outlined in *Cooperative Education and Other Forms of Experiential Learning: Policies and Procedures for Ontario Secondary Schools, 2000.* Further details on school–work transition programs can be found in *Ontario Secondary Schools, Grades 9 to 12: Program and Diploma Requirements, 1999,* section 7.4.3.

Health and Safety. In planning learning activities to help them achieve curriculum expectations, teachers must ensure that students have opportunities to consider health, safety, and security issues and personal responsibility relevant both to specific disciplines and to interdisciplinary areas of work. They must follow safe practices and communicate safety expectations to students in accordance with school board and ministry policies. In diverse interdisciplinary activities, students must be able to demonstrate knowledge of the equipment used and the procedures necessary for its safe use. Interdisciplinary activities often take the teacher and students out of the predictable classroom environment and into new settings. Teachers must preview and plan expeditions carefully to protect students' health and safety. Health and safety issues must also be addressed when learning involves cooperative education and other workplace experiences, in accordance with the guidelines outlined in *Cooperative Education and Other Forms of Experiential Learning: Policies and Procedures for Ontario Secondary Schools, 2000.* Teachers who provide support for students in workplace learning placements need to assess placements for safety and ensure that students understand the importance of health and safety issues in the workplace, as well as acquire the knowledge and skills needed for safe participation. Both teachers and placement supervisors must ensure that all students with special needs are thoroughly familiar with and able to put into practice all the safety precautions that may be required at the placement. They must also ensure that any workplace accommodations needed to ensure students' safety are in place.

The Achievement Chart for Interdisciplinary Studies

The achievement chart that follows identifies four categories of knowledge and skills in interdisciplinary studies – Knowledge/Understanding, Thinking/Inquiry, Communication, and Application. These categories encompass all the curriculum expectations in interdisciplinary studies courses. For each of the category statements in the left-hand column, the levels of student achievement are described. (Detailed information on the achievement levels and on assessment, evaluation, and reporting policy and its implementation is provided in *The Ontario Curriculum, Grades 9 to 12: Program Planning and Assessment, 2000*.)

The achievement chart is meant to guide teachers in:

– planning instruction and learning activities that will lead to the achievement of the curriculum expectations in a course;

– planning assessment strategies that will accurately assess students' achievement of the curriculum expectations;

– selecting samples of student work that provide evidence of achievement at particular levels;

– providing descriptive feedback to students on their current achievement and suggesting strategies for improvement;

– determining, towards the end of a course, a student's most consistent level of achievement of the curriculum expectations as reflected in his or her course work;

– devising a method of final evaluation;

– assigning a final grade.

The achievement chart can guide students in:

– assessing their own learning;

– planning strategies for improvement, with the help of their teachers.

The achievement chart provides a standard province-wide method for teachers to use in assessing and evaluating their students' achievement. A variety of materials is being made available to assist teachers in improving their assessment methods and strategies and, hence, their assessment of student achievement.

The ministry provides the following materials to school boards for distribution to teachers:

– a standard provincial report card, with an accompanying guide

– instructional planning materials

– assessment videos

– training materials

– an electronic curriculum planner

When planning courses and assessment, teachers should review the required curriculum expectations and link them to the categories to which they relate. They should ensure that all the expectations are accounted for in instruction, and that achievement of the expectations is assessed within the appropriate categories. The descriptions of the levels of achievement given in the chart should be used to identify the levels at which the student has achieved the expectations. Students should be given numerous and varied opportunities to demonstrate their achievement of the expectations across the four categories. Teachers may find it useful to provide students with examples of work at the different levels of achievement.

The descriptions of achievement at level 3 reflect the provincial standard for student achievement. A complete picture of overall achievement at level 3 in a course in interdisciplinary studies can be constructed by reading from top to bottom in the column of the achievement chart headed "70–79% (Level 3)".

Achievement Chart – Grades 11 and 12, Interdisciplinary Studies

Categories	50–59% (Level 1)	60–69% (Level 2)	70–79% (Level 3)	80–100% (Level 4)
Knowledge/ Understanding	The student:			
– knowledge of facts and ideas	– demonstrates limited knowledge of relevant facts and ideas	– demonstrates some knowledge of relevant facts and ideas	– demonstrates considerable knowledge of relevant facts and ideas	– demonstrates thorough knowledge of relevant facts and ideas
– understanding of concepts (e.g., connectedness, interdependence, multiple perspectives)	– demonstrates limited understanding of required concepts	– demonstrates some understanding of required concepts	– demonstrates considerable understanding of required concepts	– demonstrates thorough and insightful understanding of required concepts
– understanding of relationships between concepts and/or disciplines	– demonstrates limited understanding of relationships between concepts and/or disciplines	– demonstrates some understanding of relationships between concepts and/or disciplines	– demonstrates considerable understanding of relationships between concepts and/or disciplines	– demonstrates thorough understanding of relationships between concepts and/or disciplines
Thinking/Inquiry	The student:			
– use of thinking skills that go beyond the scope of a single discipline (e.g., prioritizing, solving problems, making analogies, predicting, inferring, reasoning)	– uses a limited range of thinking skills	– uses a moderate range of thinking skills	– uses a considerable range of thinking skills	– uses a wide range of thinking skills confidently and effectively
– use of critical-thinking skills (e.g., problem solving from multiple perspectives, decision making that uses a systems approach)	– uses critical-thinking skills with limited insight and effectiveness	– uses critical-thinking skills with some insight and effectiveness	– uses critical-thinking skills with considerable insight and effectiveness	– uses critical-thinking skills with a high degree of insight and effectiveness
– application of an inquiry/research process (e.g., formulating questions, planning, selecting resources and technologies, analysing and evaluating information) to understand interdisciplinary relationships	– applies a few of the required skills and strategies of an inquiry/research process	– applies some of the required skills and strategies of an inquiry/research process	– applies most of the required skills and strategies of an inquiry/research process	– applies all or almost all of the required skills and strategies of an inquiry/research process
– application of creative-thinking skills (e.g., generating models of thinking and synthesis)	– applies creative skills with limited effectiveness and innovation	– applies creative skills with some effectiveness and innovation	– applies creative skills with considerable effectiveness and innovation	– applies creative skills with a high degree of effectiveness and innovation

Categories	50–59% (Level 1)	60–69% (Level 2)	70–79% (Level 3)	80–100% (Level 4)
Communication	The student:			
– communication of information and ideas	– communicates information and ideas with limited clarity	– communicates information and ideas with some clarity	– communicates information and ideas with considerable clarity	– communicates information and ideas with a high degree of clarity
– collaboration (e.g., interactive listening, team building, cooperative planning, leadership)	– collaborates with others with limited effectiveness	– collaborates with others with some effectiveness	– collaborates with others with considerable effectiveness	– collaborates with others with a high degree of effectiveness
– use of language, symbols, media, and technologies	– uses language, symbols, media, and technologies with limited accuracy and effectiveness	– uses language, symbols, media, and technologies with some accuracy and effectiveness	– uses language, symbols, media, and technologies with considerable accuracy and effectiveness	– uses language, symbols, media, and technologies with a high degree of accuracy and effectiveness
– communication for different audiences and purposes in real-life situations across the disciplines	– communicates with a limited awareness of audience and purpose	– communicates with some awareness of audience and purpose	– communicates with considerable awareness of audience and purpose	– communicates with a high degree of awareness of audience and purpose
– use of various communication forms and technologies	– demonstrates limited command of various forms and technologies	– demonstrates some command of various forms and technologies	– demonstrates considerable command of various forms and technologies	– demonstrates extensive command of various forms and technologies
Application	The student:			
– application of ideas and skills in familiar contexts	– applies ideas and skills in familiar contexts with limited effectiveness	– applies ideas and skills in familiar contexts with some effectiveness	– applies ideas and skills in familiar contexts with considerable effectiveness	– applies ideas and skills in familiar contexts with a high degree of effectiveness
– application of ideas and skills in new contexts	– applies ideas and skills in new contexts with limited effectiveness	– applies ideas and skills in new contexts with some effectiveness	– applies ideas and skills in new contexts with considerable effectiveness	– applies ideas and skills in new contexts with a high degree of effectiveness
– application of processes and technologies (e.g., the research process, multimedia and telecommunications technologies)	– applies processes and technologies with limited effectiveness and creativity	– applies processes and technologies with some effectiveness and creativity	– applies processes and technologies with considerable effectiveness and creativity	– applies processes and technologies with a high degree of effectiveness and creativity
– provision of explanations that incorporate new understandings	– provides explanations that incorporate a few new personal understandings	– provides explanations that incorporate some new personal understandings	– provides explanations that incorporate a considerable number of new personal understandings	– provides explanations that incorporate a significant number of new personal understandings
– finding connections (e.g., among disciplines, between a discipline and the world outside the school)	– finds connections with limited success	– finds connections with some success	– finds connections with considerable success	– finds connections with a high degree of success

Note: A student whose achievement is below 50% at the end of a course will not obtain a credit for the course.

The Ministry of Education wishes to acknowledge the contribution of the many individuals, groups, and organizations that participated in the development and refinement of this curriculum policy document.