



Science With Enriched Second Language (200.D0)

Pre-University Program

College Education

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DEFINITION OF THE PROGRAM

Titre du programme	:	Sciences de la nature avec langue seconde enrichie
Type de programme	:	Programme d'études préuniversitaires
Code et version du programme	:	200.D0 (2018)
Type de sanction	:	Diplôme d'études collégiales
Conditions particulières d'admission	:	Chimie de la 5 ^e secondaire Mathématique, séquence Technico-sciences ou séquence Sciences naturelles de la 5 ^e secondaire Physique de la 5 ^e secondaire
Nombre d'unités	:	60
— Formation générale	:	28
— Formation spécifique	:	32
Nombre de périodes d'enseignement	:	1 620
— Formation générale	:	720
— Formation spécifique	:	900
Champ d'études	:	Sciences de la nature Il comprend les disciplines biologie, mathématique, chimie, physique et géologie.

Recommandations :

_____	_____
Sous-ministre adjoint à l'Enseignement supérieur	Date

_____	_____
Sous-ministre	20-1-19 Date

Approbation du ministre:

_____	_____
Approbation du ministre	27-01-19 Date

DEFINITION OF THE PROGRAM

Program title	:	Science With Enriched Second Language
Type of program	:	Pre-university program
Program code and version	:	200.D0 (2018)
Type of certification	:	Diploma of College Studies
Special conditions for admission	:	Secondary V Chemistry Secondary V Mathematics: Technical and Scientific option or Science option Secondary V Physics
Number of credits	:	60
— Enriched general education component	:	28
— Program-specific component	:	32
Number of periods of instruction	:	1620
— Enriched general education component	:	720
— Program-specific component	:	900
Field of study	:	Science It includes the disciplines of Biology, Mathematics, Chemistry, Physics and Geology.

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College-Level Programs

In Québec, college is the next stage after the compulsory years of schooling (elementary and secondary school). College graduates enter the labour market directly or proceed to university studies. The Minister of Education and Higher Education establishes the programs of study, while individual colleges ensure their implementation.

A college-level program provides the frame of reference within which the students acquire designated competencies in order to qualify for a profession or to pursue their studies. For the teachers, the program outlines learning objectives and defines the scope of their application.

The following figure illustrates the relationships among the elements of a college-level program, going from the general to the specific:

- Aims of college education;
- Common competencies;
- Goals of the program-specific component and the general education component;
- Objectives and standards of the program-specific component and the general education component.

Figure 1 – Elements of a College-Level Program



Programs leading to the Diploma of College Studies (DCS) include two main components: a general education component and a program-specific component. Both these components contribute to a student's education, as the knowledge, skills and attitudes imparted in one are emphasized and applied in the other, whenever possible. General education is an integral part of each program and, when coupled with the program-specific component as part of an integrated approach, fosters the development of the competencies required by all programs.

All college-level programs are characterized by three educational aims and five common competencies.

Aims of College Education

Educational aims guide the actions of those involved in the students' education. They facilitate the program-based approach by establishing the outcomes expected of students at the end of their college studies.

To educate students to live responsibly in society

At the personal level, students show they are engaged in their learning. They demonstrate rigour and perseverance as well as skills enabling them to analyze, synthesize and carry out research. At the professional level, they draw on their ability to apply their knowledge, skills and attitudes and to adapt to new situations. In the realm of social and civic life, students assume their role as informed and responsible citizens by adopting desirable attitudes and behaviours. They show evidence of open-mindedness and a sense of community in their dealings with others.

To help students integrate cultural knowledge into their studies

Students continue to enhance their personal culture and are able to appreciate various forms of cultural expression. Through their studies, they have become familiar with cultural productions. They can interpret the meaning and assess the value of these productions and are aware of the role they themselves play in the expression of culture. The development of their critical judgment and social conscience and the consolidation of their historical references have broadened their cultural horizons. Students recognize the diversity of social and cultural realities and appreciate the breadth and wealth of Québec's culture. Lastly, they apply their cultural knowledge by making connections among events occurring around them and by being involved in cultural, artistic, sports, technical or scientific activities.

To help students master language as a tool for thought, communication and openness to the world

Students understand and produce various forms of complex discourse in different situations. They are able to read and write independently at an advanced skill level. Their mastery of language allows them to engage in independent reflection, to know where they stand relative to various forms of discourse, and to express themselves in a structured, rational and precise manner. When faced with different communication situations, students are able to express their world view and identity. Language mastery also helps students be receptive to the dissemination of a broad range of knowledge. It allows them to share points of view and improve their communication skills in both the language of instruction and a second language.

Common Competencies of College Education

Common competencies are associated with the aims of college education. They help to ensure students are adequately prepared for personal and professional life.

Solve problems

Students can identify a problem and analyze its elements. They can list and classify possible solutions and implement the one they feel is most effective. They reflect on their approach, assess the appropriateness of the chosen solution and determine whether it can be applied in other situations.

Use creativity

Students discover new possibilities by juxtaposing, combining and reorganizing existing concepts, and by using ideas, strategies and techniques in new ways. Students are open to new ideas and different ways of doing things, while assessing their effectiveness.

Adapt to new situations

When faced with a new situation, students are both open and critical. After analyzing the situation at hand, they identify and test ways of dealing with it. To adapt to a world that is constantly changing, students work in teams and show concern for keeping their knowledge up to date.

Exercise a sense of responsibility

Students assume their role as responsible citizens and act in accordance with socially and democratically desirable attitudes and behaviours. They act ethically and with integrity, exercise critical judgment and are fully engaged, personally, socially and professionally. Independent and organized, they respect their commitments.

Communicate

Students deliver a coherent message adapted to each situation. They are able to listen and to structure their thoughts in order to formulate a clear message. They rely on a variety of communication strategies and use information and communications technologies. They evaluate the impact of their communication and review their strategies, as needed.

Implementation of College-Level Programs

Each college determines the ways in which the educational aims, common competencies, goals, objectives and standards are implemented. This does not mean that students in a college must follow common courses. Each course may contribute to the full or partial achievement of these elements. The important thing is that all of these elements are taken into consideration in one or more courses and that they become specific focuses of teaching and learning, since they have been recognized as essential to the practice of a profession or to the pursuit of university studies in a given discipline.

The Science With Enriched Second Language Program

The *Science* program, from which this program is derived, was designed in keeping with the *Cadre général d'élaboration des programmes d'études préuniversitaires*, the framework for the development of pre-university programs, whose aim is to:

- Harmonize the general education and program-specific components of programs (program-based approach);
- Harmonize pre-university programs with university programs (training continuum);
- Foster the acquisition of comparable competencies throughout the college network;
- Foster a type of education that contributes to the overall development of the person.

This document was developed in cooperation with a program advisory committee composed of university representatives, academic deans and college teachers.

The *Science With Enriched Second Language* program includes three components: a program-specific component, a general education component that is common to all programs and that has been enriched and a general education component that is specific to the chosen program, also enriched.

- The program-specific component consists of 32 credits.
- The enriched general education component common to all programs consists of 22 credits:
 - Language of Instruction and Literature: 7½ credits
 - Français, langue d'enseignement et littérature: 7½ credits
 - Philosophy or Humanities: 4½ credits
 - Physical Education: 3 credits
- The enriched general education component specific to the program consists of 6 credits:
 - Language of Instruction and Literature: 2 credits
 - Français, langue d'enseignement et littérature: 2 credits
 - Philosophy or Humanities: 2 credits

Aim of the Program

The *Science With Enriched Second Language* program is intended to provide students with a balanced education which integrates the basic components of rigorous scientific and general education and to equip students to pursue university-level studies in the pure and applied sciences or in the health sciences.

Goals of the Program

Program-Specific Component

At the end of the *Science With Enriched Second Language* program, students will be able to:

- Apply the experimental method
- Take a systematic approach to problem solving
- Use the appropriate data-processing technologies
- Reason logically
- Communicate effectively
- Learn autonomously
- Work as members of a team
- Make connections between science, technology and social progress
- Define their personal systems of values
- Become familiar with the context in which scientific concepts are discovered and developed
- Adopt attitudes that are useful for scientific work
- Apply what they have learned to new situations

Apply the experimental method

Using the knowledge they have acquired in the particular field of study of the program, students must be able to carry out the various steps in the experimental method. At the college level, they are not asked to be scientists or to produce new findings but, more realistically, to confirm previously established results or to verify propositions. To this end, they must:

- observe and gather data
- draw inferences from data and construct hypotheses
- set up experiments, use measuring instruments correctly and carry out experiments
- summarize their observations, estimate their degree of certainty, draw conclusions from them and interpret and critique them

Take a systematic approach to problem solving

In the general meaning of the term, that is, in a context much broader than that of exercises designed to teach students to use techniques or apply algorithms, students must be able to:

- frame a problem and construct a representation of it
- analyze a problem, identifying its elements and the relationships among them and their structure and organization
- solve a problem

Use the appropriate data-processing technologies

Science students must attain a certain level of competence in the selection and use of the available technological tools. In other words, they must be able to:

- use a computer and its main peripherals
- use the main types of data-processing software: word-processing, data-processing and graphics programs and specialized software

It is essential that some courses take this goal into account. In these courses, the students may be introduced to the use of data-processing programs in science. Educational software may also be used to allow the students to acquire and develop problem-solving skills or to familiarize them with simulations, which constitute a powerful computer application in science and mathematics.

In addition, it is important that students, especially those who will later study applied sciences or engineering, receive an introduction to the construction and programming of algorithms.

Each college-level institution may take into account its students' computer skills when they start college. It is not up to the Ministère to define the terms and conditions, nor to favour one computer language over others. However, it does seem important to choose a language that allows structured programming and to construct the learning activities around scientific problems and applications.

Reason logically

In most of their university-level science studies, students will be required to construct logical arguments, demonstrations, proofs, etc. To this end, they must:

- identify a certain number of ideas related to the subject area, and compare, classify and evaluate them
- organize relevant ideas into a logical sequence
- construct a coherent argument, a rationale and a proof

Communicate effectively

Students must acquire general competence in the area of communication. They must be able to:

- read scientific or literary texts, as well as texts on current issues
- write scientific, literary and other types of texts
- express themselves orally during class presentations, demonstrations or large or small group discussions

Students must perform these tasks:

- by correctly using the language of instruction and the second language; the requirements in the latter case should be realistic, with learning activities focused mainly on reading
- by making proper use of the various languages (terminology, symbolism, conventions, etc.) specific to the scientific disciplines covered in the program

Learn autonomously

To take up the challenges facing science students at the university level, college students also need to become independent learners: To this end, they must:

- locate, organize and use pertinent information
- plan their own learning process, setting realistic goals and choosing appropriate means of attaining them
- evaluate the effectiveness of their strategies, adapt to different situations and readjust their objectives and behaviour

Work as members of a team

University students are not isolated. They are surrounded by professors, students, technicians and many others, not to mention the scientific community that they will gradually become part of over the years. As members of a team, the students must:

- interact with others
- assume various roles (leadership, collaboration, support) in disciplinary and multidisciplinary teams oriented toward the pursuit of common goals and objectives
- understand and respect the diversity and interdependence of individuals

Make connections between science, technology and social progress

Science differs from other ways of comprehending reality both in its primary objective, which is to understand the world around us, and in its ways of knowing, which are mainly observation, reasoning, experimentation and validation. Scientific findings may suggest modifications to be made to the physical or social environment or to some area of human activity. This is a challenge that technology can help us meet, because it enhances our ability to change the world to make it better fit our needs. Technology provides tools, equipment and processes that allow us to feed and house ourselves and ensure our safety, to extend the reach of our arms or our voices, and to develop new forms of expression. The costs and risks of such undertakings are often complex and difficult to predict. They may have completely unexpected effects for society as a whole or for specific groups, either immediately or in the medium or long term.

For these reasons, a science education is not complete unless students:

- confront the power and the limits of science and technology
- discuss their implications for social progress

This could be included in courses in specific education. General education courses may also make a contribution in this area, especially through the choice of topics and texts covered in general education specific to the program.

Define their personal systems of values

Science students should be encouraged to define their own systems of values and to choose the values they will promote as scientists.

To this end, the students must:

- identify and choose personal values
- refer to ethical considerations and to their systems of values when making decisions and adopting conduct

Courses in both general and specific education and, perhaps especially, courses in experimental disciplines in which questions related to pollution, the environment or biotechnology may arise can provide students with the knowledge and skills on which to base the positions they take.

Become familiar with the context in which scientific concepts are discovered and developed

As their scientific knowledge increases through the mathematics and science courses in the program, students should learn to:

- place the emergence and evolution of the concepts taught in the context of the development of human thought
- recognize how knowledge is constructed and transformed when it is subjected to discussion and the validation of hypotheses through research

Each course in the program can devote only a small part of the teaching time to this activity. However, if the opportunities are used to advantage, students can be introduced to the area of science involving research and the development of knowledge.

Adopt attitudes that are useful for scientific work

The list of attitudes and qualities science students must demonstrate is long, and no student can be expected to develop them all to a high level. However, it is desirable that they:

- demonstrate personal attitudes and qualities such as a liking for sustained effort, perseverance, curiosity, creativity, flexibility, a desire to help others and a critical spirit

Apply what they have learned to new situations

On completion of the program, students must:

- see the connections among courses in the same discipline
- establish links among the various disciplines in the program
- integrate what they have learned and apply it to solving problems in new situations

This goal constitutes the end that all the teaching and learning activities of the program should aim for.

Everyone immediately recognizes the importance of the integration of learning in the program, and everyone wants the integration of learning and attitudes to be an ongoing and explicit aim in all the courses in the program—and not only in one course at the end of the program. However, the importance placed on integration by the *College Education Regulations* and the obligation to develop a comprehensive examination that tests whether students have attained all the objectives and standards of the program constitute powerful incentives to set up a distinct activity specifically aimed at the integration of learning. Whatever organizational means are adopted, college-level institutions will have to specify how they enable their students to attain this goal.

Enriched General Education Component Common to All Programs and Enriched General Education Component Specific to the Program

The general education components that are common to all programs and specific to the program and that have been enriched contribute to the development of twelve competencies associated with the three aims of college education:

- for the aim *To educate students to live responsibly in society*:
 - Demonstrate independence and creativity in thought and action
 - Demonstrate rational, critical and ethical thinking

- Develop strategies that promote reflection on their knowledge and actions
- Pursue the development of a healthy and active lifestyle
- Assume their social responsibilities
- for the aim *To help students integrate cultural knowledge into their studies:*
 - Recognize the influence of culture and lifestyle on the practice of physical activity and sports
 - Recognize the influence of the media, sciences or technology on culture and lifestyle
 - Analyze works in philosophy or the humanities emanating from different historical periods and movements
 - Appreciate literary and non-literary works of other artistic expressions emanating from different historical periods and movements
- for the aim *To help students master language as a tool for thought, communication and openness to the world:*
 - Improve communication in the second language
 - Master the basic rules of discourse and argumentation
 - Refine oral and written communication in the language of instruction

English, Language of Instruction and Literature

Students who have achieved the general education objectives in English, Language of Instruction and Literature,

- will be able to demonstrate their knowledge of the following:
 - the basic vocabulary and terminology used when discussing literary works
 - ways to apply an independent analytical approach to literary genres
 - ways to apply an independent analytical approach to literary themes
 - the appreciation of literary and non-literary works or other artistic expressions of different historical periods and movements
 - ways to identify the socio-cultural and historical context of different periods and movements
 - ways to refine oral and written communication in the language of instruction
- will be able to demonstrate their ability to do the following:
 - read, write, listen and speak at a college level of proficiency
 - develop their own ideas in arguments and theses
 - organize their arguments and theses in a discourse and edit their work
 - produce and analyze various styles of discourse
 - communicate in the styles of discourse appropriate to one or more fields of study
- will be encouraged to develop the following attitudes:
 - independence, individuality, and open-mindedness in thought and action
 - an appreciation of literature and other artistic works from different periods
 - a recognition of the role of media within a society and its culture
 - an awareness of strategies that foster self-reflective practice in their learning and actions
 - critical and ethical thought

Français, langue d'enseignement et littérature

L'élève qui a atteint les objectifs de la formation générale en français, langue d'enseignement et littérature, peut rendre compte,

- sur le plan des connaissances :
 - des caractéristiques des genres et de certains courants littéraires
 - des procédés littéraires et langagiers, et de leur contribution au projet d'un texte
 - des formes de représentations du monde attachées à des œuvres et à des époques
 - de certaines caractéristiques de l'influence des médias dans diverses situations de communication
 - de l'héritage culturel québécois et de ses résonances dans le monde actuel

- sur le plan des habiletés :
 - de sa capacité d'appréciation de la littérature comme moyen de compréhension du monde et comme manifestation esthétique
 - de son aptitude à analyser et à expliquer des textes littéraires, ainsi que d'autres types de discours, et à en rendre compte par écrit de façon structurée, cohérente et dans une langue correcte
 - de sa capacité à organiser logiquement sa pensée et son discours en fonction d'une intention
 - de sa maîtrise des règles de base du discours et de l'argumentation, notamment sur le plan de la pertinence, de la cohérence et de la suffisance en matière de qualité et de quantité

- sur le plan des attitudes :
 - de sa prise de conscience de l'importance de la langue d'enseignement pour tous les domaines du savoir
 - de sa responsabilisation par rapport à ses apprentissages
 - de son ouverture à d'autres cultures et au monde par la lecture d'œuvres littéraires
 - de sa capacité à saisir les enjeux sociaux, par l'analyse de diverses représentations du monde
 - de son respect de l'éthique, notamment à l'égard de la propriété intellectuelle
 - de son autonomie et de sa créativité, par différents types de productions

Humanities

Humanities constitutes a thematic, multidisciplinary and, at times, transdisciplinary exploration of humankind, including its accomplishments, failures, abilities, creations, ideas and values. Students who have achieved the general education objectives in humanities,

- will be able to demonstrate their knowledge of the following:
 - the main concepts, limits and uses of a form of knowledge including significant historical reference points
 - the main concepts, limits and uses of a world view
 - the nature and organization of the basic elements of an ethical question
 - methods for coherent integration of concepts and the formulation and synthesis of ideas
 - the importance and practice of adequately substantiated argumentation, written and oral

- will be able to demonstrate their ability to do the following:
 - describe, explain and organize the main elements, ideas, values and implications of a world view in a coherent fashion
 - compare world views
 - recognize the basic elements in a specific example of the organization, transmission, and use of knowledge
 - recognize forms of creativity and original thought
 - define the dimensions, limits and uses of knowledge in appropriate historical contexts
 - identify, organize and synthesize the salient elements of a particular example of knowledge
 - situate important ethical and social issues in their appropriate historical and intellectual contexts
 - explain, analyze and debate ethical issues in a personal and professional context
 - utilize the multiple strategies of critical thinking

- will be encouraged to develop the following attitudes:
 - openness to diversity and pluralism
 - awareness of the limits of knowledge claims, world views and ethical perspectives
 - respect for the points of view of others
 - empathy and acceptance of others
 - concern for global issues
 - determination to continue learning

Physical Education

Students who have achieved the general education objectives in physical education,

- will be able to demonstrate their knowledge of the following:
 - notions and concepts based on the findings of scientific research and how to apply them methodically to physical or sporting activities
 - the relationship between lifestyle, physical activity, physical fitness and health
 - ways to evaluate their own abilities and needs with respect to activities that can enhance their health and fitness
 - the rules, techniques and conditions involved in different types of physical or sporting activity
 - the main socio-cultural determinants of physical activity and a healthy lifestyle

- will be able to demonstrate their ability to do the following:
 - give an initial account of their abilities, attitudes and needs
 - choose physical activities on the basis of their motivation, their ability to adapt to effort and their need for change
 - apply the rules and techniques of a certain number of physical activities with a view to practising them sufficiently on a regular basis
 - set goals that are realistic, measurable, challenging and situated within a specific time frame
 - improve their mastery of basic techniques and strategies associated with physical activities
 - evaluate their skills, attitudes and progress in order to adapt their means or objectives in their practice of physical activities
 - autonomously maintain or increase their physical activity and fitness levels in order to develop a healthy and active lifestyle
 - use their creativity in physical activities
 - express their choice of activities in a clear and reasoned manner

- will be encouraged to develop the following attitudes:
 - awareness of the importance of regular and sufficient physical activity in order to improve their fitness
 - awareness of the factors that encourage them to practise physical activity more often
 - awareness of the importance of evaluating and respecting their ability to adapt to effort, as well as an awareness of the conditions necessary to carry out a physical activity program, before committing to it
 - self-confidence, self-control, cooperation, respect and understanding, through knowledge and through the practice of a physical activity
 - respect for ethical behaviour when participating in a sport or a physical activity
 - respect for individual and cultural differences as well as for the environment in which the sport or physical activity takes place
 - appreciation for the aesthetic value of physical activity as well as the opportunities for enjoyment it provides
 - readiness to adopt the values of discipline, effort, consistency and perseverance,
 - readiness to promote, as a social value, the regular and sufficient practice of physical activity

Program Objectives and Standards

List of Objectives

Program-Specific Component

32 credits, 900 periods of instruction

Common Objectives

- 00UK Analyze the organization, functioning and diversity of living beings
- 00UL Analyze chemical and physical changes in matter using concepts associated with the structure of atoms and molecules
- 00UM Analyze the properties of solutions and reactions in solutions
- 00UN Apply the methods of differential calculus to the study of functions and problem solving
- 00UP Apply the methods of integral calculus to the study of functions and problem solving
- 00UQ Apply the methods of linear algebra and vector geometry to problem solving
- 00UR Analyze various situations and phenomena in physics using the basic principles of classical mechanics
- 00US Analyze various situations and phenomena in physics using the basic laws of electricity and magnetism
- 00UT Analyze various situations or phenomena associated with waves, optics and modern physics using basic principles
- 00UU Apply acquired knowledge to one or more subjects in the sciences

Optional Objectives

- 00UV Apply the experimental method in a scientific field
- 00XU Analyze the structure and functioning of multicelled organisms in terms of homeostasis and from an evolutionary perspective
- 00XV Solve simple problems in organic chemistry

Enriched General Education Component Common to All Programs and
Enriched General Education Component Specific to the Program
22 credits and 555 periods of instruction, 6 credits and 165 periods of instruction

English, Language of Instruction and Literature

- 4EA0 Analyze and produce various forms of discourse
- 4EA1 Apply an analytical approach to literary genres
- 4EA2 Apply an analytical approach to a literary theme
- 4EAP Communicate in the forms of discourse appropriate to one or more fields of study

Français, langue d'enseignement et littérature

- 4EF0 Analyser des textes littéraires.
- 4EF1 Expliquer les représentations du monde contenues dans des textes littéraires d'époques et de genres variés.
- 4EF2 Apprécier des textes de la littérature québécoise d'époques et de genres variés.
- 4EFP Produire différents types de discours oraux et écrits liés au champ d'études de l'élève.

Humanities

- 4HU0 Apply a logical analytical process to how knowledge is organized and used
- 4HU1 Apply a critical thought process to world views
- 4HUP Apply a critical thought process to ethical issues relevant to the field of study

Physical Education

- 4EP0 Analyze one's physical activity from the standpoint of a healthy lifestyle
- 4EP1 Improve one's effectiveness when practising a physical activity
- 4EP2 Demonstrate one's ability to assume responsibility for maintaining a healthy lifestyle through the continued practice of physical activity

Program-Specific Component

Common Objectives and Standards

Code: 00UK

<i>Objective</i>	<i>Standard</i>
Statement of the Competency	
Analyze the organization, functioning and diversity of living beings.	
Elements of the Competency	Performance Criteria
<ol style="list-style-type: none"> 1. Recognize the relationships between the structures and functions of certain levels of organization of living beings. 2. Analyze the mechanisms that are responsible for the genetic variation of living beings. 3. Evaluate the action of the mechanisms of evolution on the diversity and the levels of complexity of living beings. 4. Analyze the integration of living beings with their environment. 5. Explain the processes of transformation of matter and energy. 	<ul style="list-style-type: none"> • Proper use of concepts and terminology • Clear description of the principal steps of a biological process • Accurate description of structures and their functions • Description of the correlations between structures and functions • Appropriate use of the dictionary of the genetic code • Appropriate use of the laws of genetics and the chromosome theory of heredity • Clear description of the factors that cause or maintain genetic variation • Account of the main adaptations of organisms to their environment • Presentation of the conditions for balance in an ecosystem • Statement of the main environmental problems • Justified interpretations of the structural, functional and evolutionary links of the levels of complexity of living beings • Observance of the experimental method and, where applicable, the experimental procedure • Adherence to safety and environmental protection regulations • Appropriate use of techniques of observation and experimentation
Learning Activities	
Discipline:	Biology
Weighting:	3-2-3
Credits:	2 $\frac{2}{3}$
Periods of instruction:	75
Indications:	<p>Structural and functional characteristics of macromolecules, cells and ecosystems. DNA and the regulation of gene expression, protein synthesis, mutations. Mendel's laws and their generalization, sex-linked genes and heredity, chromosomal abnormalities.</p> <p>The origin of life, theories of evolution, the evolution of populations, speciation, characteristics of the five kingdoms of living organisms. Biogeochemical cycles, energy flow and productivity in an ecosystem.</p>

Objective

Standard

Statement of the Competency

Analyze chemical and physical changes in matter using concepts associated with the structure of atoms and molecules.

Elements of the Competency

1. Apply the probabilistic model of the atom in analyzing the properties of the elements.
2. Solve problems pertaining to the structure and states of matter using modern theories of chemistry.
3. Apply the laws of stoichiometry to the study of chemical phenomena.
4. Verify experimentally a number of physical and chemical properties of matter.

Performance Criteria

- Proper use of concepts, laws and principles
- Use of appropriate terminology
- Representation in conformity with the probabilistic model
- Adequate representation of situations presented
- Correct application of experimental procedures and techniques
- Adherence to safety and environmental protection regulations
- Accuracy of calculations
- Laboratory report in line with established standards

Learning Activities

Discipline: Chemistry

Weighting: 3-2-3

Credits: 2 $\frac{2}{3}$

Periods of instruction: 75

Indications: Orbitals and probability of presence of electrons, quantum numbers.
 Elements: periodic table, normal physical state, periodic properties of elements, oxidization numbers.
 Terminology of elements and inorganic compounds.
 Energy in the formation of chemical bonds.
 Intermolecular bonds.
 Prediction of molecular structures.
 Intermolecular bonds and states of matter.
 Basic experimental techniques in chemistry.

Objective

Standard

Statement of the Competency

Analyze the properties of solutions and reactions in solutions.

Elements of the Competency

1. Analyze the colligative properties of solutions.
2. Solve problems pertaining to the kinetics of reactions in solutions.
3. Solve problems pertaining to chemical equilibrium.
4. Verify experimentally a number of properties of solutions.
5. Determine experimentally a number of characteristics of reactions in solutions.

Performance Criteria

- Proper use of concepts, laws and principles
- Use of appropriate terminology
- Adequate representation of situations
- Rigour and consistency of the problem-solving procedure
- Validity of required approximations
- Correct application of the experimental procedure
- Adherence to safety and environmental protection regulations
- Validity of the content of the laboratory report
- Logical processing of results
- Estimation of uncertainties
- Quality of the presentation of experimental data

Learning Activities

Discipline: Chemistry

Weighting: 3-2-3

Credits: 2 $\frac{2}{3}$

Periods of instruction: 75

Indications: Phenomenon of solvation (qualitative study).
Concentration units.

Colligative properties: boiling and freezing temperatures, osmotic pressure, Raoult's Law.

Kinetics of reactions: qualitative aspect, reaction rate equation and integral reaction rate equation applied to first and second order reactions, energy in reactions, rate constants, half reaction time.

Le Chatelier's principle.

Equilibrium in aqueous solutions (qualitative and quantitative aspects): acid-base reactions, oxide reduction reactions, solubility.

Objective

Standard

Statement of the Competency

Apply the methods of differential calculus to the study of functions and problem solving.

Elements of the Competency

Performance Criteria

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Recognize and describe the characteristics of a function expressed in symbolic or graphic form. 2. Determine whether a function has a limit or is continuous or has a derivative at a point or on an interval. 3. Apply the rules and techniques of differentiation. 4. Use the derivative and related concepts to analyze the variations of a function and graph it. 5. Solve optimization and rate of change problems. | <ul style="list-style-type: none"> • Proper use of concepts • Representation of a situation as a function • Accurate graphic representation of a function • Correct choice and application of differentiation techniques • Algebraic operations in conformity with rules • Accuracy of calculations • Correct interpretation of results • Explanation of steps in problem-resolution procedure • Use of appropriate terminology |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Learning Activities

Discipline: Mathematics
 Weighting: 3-2-3
 Credits: 2½
 Periods of instruction: 75

Indications: Functions: algebraic, exponential, logarithmic, trigonometric and inverse trigonometric.
 Limit: intuitive approach, definition, properties, calculation of limits.
 Continuity: definition and properties.
 Derivative: geometric interpretation, definition, standard rules and techniques.
 Applications: study of curves, optimization problems, rates of change.

Objective

Standard

Statement of the Competency

Apply the methods of integral calculus to the study of functions and problem solving.

Elements of the Competency

Performance Criteria

- | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> 1. Determine the indefinite integral of a function. 2. Calculate the limits of indeterminate forms. 3. Calculate the definite integral and the improper integral of a function on an interval. 4. Express concrete problems as differential equations and solve simple differential equations. 5. Calculate volumes, areas and lengths and draw two- and three-dimensional representations. 6. Analyze the convergence of infinite series. | <ul style="list-style-type: none"> • Proper use of concepts • Adequate two- and three-dimensional representations of surfaces and solids of revolution • Algebraic operations in conformity with rules • Correct choice and application of rules and techniques of integration • Accuracy of calculations • Justification of steps in the solution • Correct interpretation of results • Use of appropriate terminology |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

Learning Activities

Discipline: Mathematics
 Weighting: 3-2-3
 Credits: 2 $\frac{2}{3}$
 Periods of instruction: 75
 Indications: Limit: indeterminate forms, l'Hospital's rule.
 Standard rules and techniques of integration.
 Properties of the indefinite integral and the definite integral.
 Calculation of lengths, areas and volumes.
 The Fundamental Theorem of Calculus.
 Differential equations in separable variables.
 The Taylor and MacLaurin series.

Objective

Standard

Statement of the Competency

Apply the methods of linear algebra and vector geometry to problem solving.

Elements of the Competency

1. Express concrete problems as linear equations.
2. Solve systems of linear equations using matrices.
3. Establish connections between geometry and algebra.
4. Determine the equation of geometric loci (straight lines and planes) and find their intersections.
5. Calculate angles, lengths, areas and volumes.
6. Demonstrate propositions.
7. Make two- and three-dimensional drawings of loci.

Performance Criteria

- Proper use of concepts
- Representation of situations in terms of vectors and matrices
- Correct application of algorithms
- Correct solution of systems of linear equations
- Adequate representation of loci
- Justification of the steps in the solution
- Algebraic operations in conformity with rules
- Accuracy of calculations
- Correct interpretation of results
- Use of appropriate terminology

Learning Activities

Discipline: Mathematics
 Weighting: 3-2-3
 Credits: 2 $\frac{2}{3}$
 Periods of instruction: 75

Indications: Matrix and determinant: definitions, properties, operations, applications.
 The Gauss-Jordan and inverse matrix methods of solving systems of linear equations.
 Geometric and algebraic vectors: definition, representation, properties, operations, applications.
 Products of vectors: dot, cross and scalar triple product.
 Vector space: coordinate system, basis, dimension, linear combination, linear independence.
 Geometric applications: straight lines and planes, intersections of loci, calculations of angles and distances.

Objective

Standard

Statement of the Competency

Analyze various situations and phenomena in physics using the basic principles of classical mechanics.

Elements of the Competency

1. Describe the translation and rotation motions of bodies.
2. Apply the concepts and laws of dynamics to the analysis of the motion of bodies.
3. Measure the amount of work and energy involved in simple situations.
4. Apply the principles of conservation in mechanics.
5. Verify experimentally a number of laws and principles in mechanics.

Performance Criteria

- Proper use of concepts, laws and principles
- Adequate representation of situations in physics
- Use of appropriate terminology
- Graphic and mathematical representations adapted to the nature of the problem
- Justification of steps in the analysis of situations
- Rigorous application of Newton's laws and the principles of conservation
- Critical evaluation of results
- Interpretation of the limits of the models
- Meticulous experimentation
- Laboratory report in line with established standards

Learning Activities

Discipline: Physics

Weighting: 3-2-3

Credits: 2 $\frac{2}{3}$

Periods of instruction: 75

Indications: Scalar and vector quantities: units and dimensions.
Kinematics of the various aspects of rotation and translation: position, displacement, linear and angular velocity, acceleration.
Force, dynamics of translation and rotation.
Energy and mechanical work.
Principles of conservation of energy and quantity of motion.

Objective

Standard

Statement of the Competency

Analyze various situations and phenomena in physics using the basic laws of electricity and magnetism.

Elements of the Competency

1. Analyze situations in physics associated with static electric charge and electric current.
2. Analyze situations in physics associated with magnetism and magnetic induction.
3. Apply the laws of electricity and magnetism.
4. Verify experimentally a number of laws of electricity and magnetism.

Performance Criteria

- Proper use of concepts, principles and laws
- Adequate representation of situations in physics
- Graphic and mathematical representations adapted to the nature of the problem
- Justification of steps in the analysis of situations
- Rigorous application of the laws of electricity and magnetism
- Critical evaluation of results
- Interpretation of the limits of the models
- Meticulous experimentation
- Appropriate use of measuring instruments
- Laboratory report in line with established standards

Learning Activities

Discipline: Physics

Weighting: 3-2-3

Credits: 2 $\frac{2}{3}$

Periods of instruction: 75

Indications: Electrostatics: charge, field, potential, energy.
 Electro-kinematics: current, circuit, energy, power.
 Magnetism: magnet, force, magnetic field.
 Electromagnetic induction: induced current, alternating current.

Objective

Standard

Statement of the Competency

Analyze various situations or phenomena associated with waves, optics and modern physics using basic principles.

Elements of the Competency

Performance Criteria

1. Apply the basic principles of physics to the description of vibrations and waves and their transmission.
2. Apply the laws of geometric optics.
3. Apply the characteristics of waves to light phenomena.
4. Analyze a number of situations using concepts of modern physics.
5. Verify experimentally a number of laws and principles associated with waves, optics and modern physics.

- Proper use of concepts, principles and laws
- Adequate representation of situations in physics
- Graphic and mathematical representations adapted to the nature of the problem
- Justification of steps in the analysis of situations
- Rigorous application of the main models
- Critical evaluation of results
- Interpretation of the limits of the models
- Meticulous experimentation
- Laboratory report in line with established standards

Learning Activities

Discipline: Physics
 Weighting: 3-2-3
 Credits: 2½
 Periods of instruction: 75
 Indications: Kinematics and dynamics of vibrations.
 Longitudinal and transverse waves.
 Progressive and stationary waves, resonance.
 Sound waves.
 Elements of modern physics.
 Geometric and physical optics.

Objective

Standard

Statement of the Competency

Apply acquired knowledge to one or more subjects in the sciences.

Elements of the Competency

Performance Criteria

1. Recognize the contribution of more than one scientific discipline to certain situations.
2. Apply the experimental method.
3. Solve problems.
4. Use data-processing technologies.
5. Reason logically.
6. Communicate effectively.
7. Show evidence of independent learning in their choice of documentation or laboratory instruments.
8. Work as members of a team.
9. Make connections between science, technology and social progress.

- Use of an interdisciplinary approach
- Consistency and rigour in problem-solving, and justification of the approach used
- Observance of the experimental method and, where applicable, the experimental procedure
- Clarity and precision in oral and written communication
- Correct use of the appropriate data-processing technology
- Appropriate choice of documents or laboratory instruments
- Significant contribution to the team
- Appropriate connections between science, technology and social progress

Optional Objectives and Standards

Code: 00UV

Objective

Standard

Statement of the Competency

Apply the experimental method in a scientific field.

Elements of the Competency

1. Represent various situations, drawing upon relevant concepts, laws and principles of science.
2. Solve problems using a method proper to science.
3. Apply techniques of experimentation or validation specific to science.

Performance Criteria

- Proper use of concepts, laws and principles
- Rigorous application of concepts, laws and principles
- Appropriate use of terminology
- Correct representation in a drawing or graph or in mathematical form
- Consistency and rigour in problem solving, and justification of the approach used
- Observance of the experimental method and, where applicable, the experimental procedure
- Justification of the approach used
- Assessment of the plausibility of the results

Learning Activities

Discipline: In the field of study or Computer Science

Objective

Standard

Statement of the Competency

Analyze the structure and functioning of multicelled organisms in terms of homeostasis and from an evolutionary perspective.

Elements of the Competency

1. Analyze the relationship between structure and function in multicelled organisms.
2. Apply the concept of homeostasis to the study of systems in plants and animals.
3. Explain the functions of conservation, regulation and reproduction in multicelled organisms.

Performance Criteria

- Proper use of concepts and terminology
- Clear description of the main stages in a biological process
- Explanation of phenomena associated with membrane transport
- Accurate description of structures and their functions
- Description of the relationships between structures and functions
- Description of cellular processes of transformation of matter and energy
- Clear description of the factors that influence the transformation of matter and energy
- Clear explanation of the contribution of various systems to homeostasis
- Accurate identification of the components of various mechanisms that regulate homeostasis as applied to various systems
- Analysis of the integration of various systems in animals or plants
- Justified interpretations of the structural, functional and evolutionary relationships between organs or systems
- Use of techniques of observation or experimentation
- Observance of the experimental method and, where applicable, the experimental procedure
- Adherence to safety and environmental protection regulations

Learning Activities

Discipline: Biology

Objective

Standard

Statement of the Competency

Solve simple problems in organic chemistry.

Elements of the Competency

1. Apply the rules of nomenclature to simple organic compounds.
2. Represent the three-dimensional structure of organic compounds using their two-dimensional structural formula.
3. Distinguish the different types of isomerism: structural, geometric (cis-trans, E/Z) and optical (molecules containing an asymmetric carbon atom, chirality, enantiomers, R/S).
4. Recognize the different types of reagents: electrophiles, nucleophiles, free radicals, Lewis acids and bases.
5. Determine the reactivity of simple organic functional groups (alkanes, alkenes, alkynes, organomagnesiums, halogenated compounds, alcohols) using the main types of reaction mechanisms (S_N1 , S_N2 , E1, E2).
6. Theoretically conceive methods for synthesizing simple organic compounds on the basis of given products.
7. Describe the main functional groups that are useful in biology and biochemistry: amines, carboxylic acids and their derivatives, lipids, amino acids, proteins, carbohydrates.
8. Prepare, separate and identify simple organic compounds.

Performance Criteria

- Use of systematic and traditional nomenclature for organic compounds
- Exact three-dimensional representation of organic compounds
- Explanation of the main electronic effects on the important types of reaction mechanisms
- Analysis of addition, elimination and substitution reactions
- Justification of the mechanism proposed to explain a simple new reaction
- Ability to identify the main reactions of simple compounds according to their functional groups
- Brief description of the nature, the common name and the role of functional groups in biology and biochemistry
- Adherence to safety and environmental protection regulations in the laboratory
- Ability to make connections between an experimental procedure and theoretical chemistry
- Quality of the experimental set-up and procedure
- Quality of the laboratory report: use of a computer, working hypotheses, coherent presentation, analysis and discussion of the results, clarity and quality of the language, bibliography

Learning Activities

Discipline: Chemistry

Enriched General Education Component Common to All Programs and Enriched General Education Component Specific to the Program

English, Language of Instruction and Literature

Code: 4EA0

Objective

Standard

Statement of the Competency

Analyze and produce various forms of discourse.

Elements of the Competency

Performance Criteria

1. Identify the characteristics and functions of the components of literary texts.	<ul style="list-style-type: none"> • Accurate explanation of the denotation of words • Adequate recognition of the appropriate connotation of words • Accurate definition of the characteristics and function of each component
2. Determine the organization of facts and arguments of a given literary text.	<ul style="list-style-type: none"> • Clear and accurate recognition of the main idea and structure • Clear presentation of the strategies employed to develop an argument or thesis
3. Prepare ideas and strategies for a projected discourse.	<ul style="list-style-type: none"> • Appropriate identification of topics and ideas • Adequate gathering of pertinent information • Clear formulation of a thesis • Coherent ordering of supporting material
4. Formulate a discourse.	<ul style="list-style-type: none"> • Appropriate choice of tone and diction • Correct development of sentences • Clear and coherent development of paragraphs • Formulation of a 750-word discourse
5. Revise the work.	<ul style="list-style-type: none"> • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: English, Language of Instruction and Literature
 Weighting: 2-2-4 or 1-3-4
 Credits: 2½

Objective

Standard

Statement of the Competency

Apply an analytical approach to literary genres.

Elements of the Competency

Performance Criteria

1. Distinguish genres of literary texts.	<ul style="list-style-type: none"> • Clear recognition of the formal characteristics of a literary genre
2. Recognize the use of literary conventions within a specific genre.	<ul style="list-style-type: none"> • Accurate recognition of the figurative communication of meaning • Adequate explanation of the effects of significant literary and rhetorical devices
3. Situate a work within its historical and literary period.	<ul style="list-style-type: none"> • Appropriate recognition of the relationship of a text to its period
4. Write a critical analysis of a literary genre.	<ul style="list-style-type: none"> • Selective use of appropriate terminology • Effective presentation of a 1000-word coherent response to a literary text
5. Revise the work.	<ul style="list-style-type: none"> • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: English, Language of Instruction and Literature
 Weighting: 2-2-3
 Credits: 2½

Objective

Standard

Statement of the Competency

Apply an analytical approach to a literary theme.

Elements of the Competency

Performance Criteria

1. Recognize the treatment of a theme within a literary text.	<ul style="list-style-type: none"> • Clear recognition of elements within the text, which define and reinforce a theme and its development • Adequate demonstration of the effects of significant literary and rhetorical devices
2. Situate a literary text within its cultural context.	<ul style="list-style-type: none"> • Appropriate recognition of a text as an expression of cultural context • Adequate demonstration of the effects of significant literary and rhetorical devices
3. Detect the value system inherent in a literary text.	<ul style="list-style-type: none"> • Appropriate identification of expression (explicit / implicit) of a value system in a text
4. Write an analysis on a literary theme.	<ul style="list-style-type: none"> • Selective use of appropriate terminology • Effective presentation of a 1000-word coherent response to a literary text
5. Revise the work.	<ul style="list-style-type: none"> • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: English, Language of Instruction and Literature
 Weighting: 2-2-3
 Credits: 2½

Objective

Standard

Statement of the Competency

Communicate in the forms of discourse appropriate to one or more fields of study.

Elements of the Competency

Performance Criteria

1. Identify the forms of discourse appropriate to given fields of study.	<ul style="list-style-type: none"> • Accurate recognition of specialized vocabulary and conventions • Accurate recognition of the characteristics of the form of discourse • Exploration of a variety of topics
2. Recognize the forms of discourse appropriate to given fields of study.	<ul style="list-style-type: none"> • Clear and accurate recognition of the main ideas and structure • Appropriate distinction between fact and argument
3. Formulate an oral and a written discourse.	<ul style="list-style-type: none"> • Examine ways to address and structure a given topic • Appropriate choice of tone and diction • Correctly developed sentences • Clearly and coherently developed paragraphs • Appropriate use of program-related communication strategies including media and technology • Formulation of a 1000-word discourse
4. Revise the work.	<ul style="list-style-type: none"> • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: English, Language of Instruction and Literature
 Periods of instruction: 60
 Credits: 2

Objectif

Standard

Énoncé de la compétence

Analyser des textes littéraires.

Éléments de la compétence

Critères de performance

1. Reconnaître le propos du texte.	<ul style="list-style-type: none"> • Formulation juste des éléments importants du propos du texte.
2. Repérer et classer des thèmes et des procédés stylistiques.	<ul style="list-style-type: none"> • Relevé des principales manifestations thématiques et stylistiques. • Classement approprié des principales manifestations thématiques et stylistiques.
3. Choisir les éléments d'analyse.	<ul style="list-style-type: none"> • Liens pertinents entre le propos du texte, les manifestations thématiques et les manifestations stylistiques.
4. Élaborer un plan de rédaction.	<ul style="list-style-type: none"> • Choix judicieux des idées principales et des idées secondaires du plan de rédaction. • Pertinence et cohérence du plan. • Structure du plan de rédaction en trois parties : introduction, développement et conclusion.
5. Rédiger une analyse littéraire, un commentaire composé ou une explication de textes.	<ul style="list-style-type: none"> • Utilisation appropriée des éléments d'analyse. • Pertinence des exemples choisis. • Organisation logique du paragraphe et des paragraphes entre eux. • Précision et richesse du vocabulaire. • Respect du registre de langue approprié. • Respect des règles de présentation d'une production écrite. • Respect des règles orthographiques, grammaticales, syntaxiques et de ponctuation. • Rédaction d'un texte d'au moins 700 mots.
6. Réviser et corriger le texte.	<ul style="list-style-type: none"> • Utilisation appropriée de stratégies de révision. • Correction appropriée du texte.

Activités d'apprentissage

Discipline : Français, langue d'enseignement et littérature

Pondération : 2-2-3 ou 1-3-3

Unités : 2 ½

Précisions : Les textes littéraires analysés appartiennent à deux époques distinctes et à deux genres différents.
 L'étude d'un minimum de huit œuvres, dont au moins deux dans le cadre cet objectif, permet d'atteindre les objectifs de la formation générale en français, langue d'enseignement et littérature.

Objectif

Standard

Énoncé de la compétence

Expliquer les représentations du monde contenues dans des textes littéraires d'époques et de genres variés.

Éléments de la compétence

Critères de performance

1. Reconnaître le traitement d'un thème dans un texte.	<ul style="list-style-type: none"> Relevé des procédés stylistiques et littéraires utilisés pour le développement du thème.
2. Situer le texte dans son contexte culturel et sociohistorique.	<ul style="list-style-type: none"> Mention des éléments significatifs du contexte culturel et sociohistorique.
3. Dégager les rapports entre le réel, le langage et l'imaginaire.	<ul style="list-style-type: none"> Liens pertinents entre le thème, les procédés stylistiques et littéraires, et les éléments significatifs du contexte culturel et sociohistorique.
4. Élaborer un plan de dissertation.	<ul style="list-style-type: none"> Choix judicieux des idées principales et des idées secondaires du plan de la dissertation. Pertinence et cohérence du plan. Structure du plan de rédaction en trois parties : introduction, développement et conclusion.
5. Rédiger une dissertation explicative.	<ul style="list-style-type: none"> Respect des limites du sujet de la dissertation. Développement approprié des idées. Pertinence des exemples choisis. Organisation logique du paragraphe et des paragraphes entre eux. Précision et richesse du vocabulaire. Respect du registre de langue approprié. Respect des règles de présentation d'une production écrite. Respect des règles orthographiques, grammaticales, syntaxiques et de ponctuation. Rédaction d'une dissertation explicative d'au moins 800 mots.
6. Réviser et corriger le texte.	<ul style="list-style-type: none"> Utilisation appropriée de stratégies de révision. Correction appropriée du texte.

Activités d'apprentissage

Discipline : Français, langue d'enseignement et littérature

Pondération : 3-1-3

Unités : 2 ⅓

Précision : L'étude d'un minimum de huit œuvres, dont au moins deux dans le cadre cet objectif, permet d'atteindre les objectifs de la formation générale en français, langue d'enseignement et littérature.

Objectif

Standard

Énoncé de la compétence

Apprécier des textes de la littérature québécoise d'époques et de genres variés.

Éléments de la compétence

Critères de performance

1. Reconnaître les caractéristiques de textes de la littérature québécoise.	<ul style="list-style-type: none"> Description appropriée des représentations du monde contenues ou exprimées dans des textes de la littérature québécoise.
2. Comparer des textes.	<ul style="list-style-type: none"> Choix pertinent des critères de comparaison. Relevé des ressemblances et des différences significatives entre des textes littéraires.
3. Déterminer un point de vue critique.	<ul style="list-style-type: none"> Pertinence du point de vue critique.
4. Élaborer un plan de dissertation.	<ul style="list-style-type: none"> Pertinence et cohérence du plan. Structure du plan de rédaction en trois parties : introduction, développement et conclusion.
5. Rédiger une dissertation critique.	<ul style="list-style-type: none"> Respect des limites du sujet de la dissertation. Emploi d'arguments appropriés. Justification du point de vue critique. Pertinence des exemples choisis. Organisation logique du paragraphe et des paragraphes entre eux. Précision et richesse du vocabulaire. Respect du registre de langue approprié. Respect des règles de présentation d'une production écrite. Respect des règles orthographiques, grammaticales, syntaxiques et de ponctuation. Rédaction d'une dissertation critique d'au moins 900 mots.
6. Réviser et corriger le texte.	<ul style="list-style-type: none"> Utilisation appropriée de stratégies de révision. Correction appropriée du texte.

Activités d'apprentissage

Discipline : Français, langue d'enseignement et littérature

Pondération : 3-1-4

Unités : 2 $\frac{2}{3}$

Précision : L'étude d'un minimum de huit œuvres, dont au moins deux dans le cadre cet objectif, permet d'atteindre les objectifs de la formation générale en français, langue d'enseignement et littérature.

Objectif

Standard

Énoncé de la compétence	
Produire différents types de discours oraux et écrits liés au champ d'études de l'élève.	
Éléments de la compétence	Critères de performance
1. Analyser les caractéristiques de la situation de communication dans des discours d'ordre culturel ou d'un autre ordre.	<ul style="list-style-type: none"> • Mise en évidence précise des composantes de la situation de communication. • Relevé des facteurs contextuels de la situation de communication. • Détermination de l'influence des médias sur la situation de communication. • Établissement de liens entre les composantes et les facteurs de la situation de communication.
2. Déterminer un sujet et un objectif de communication.	<ul style="list-style-type: none"> • Exploration de sujets variés. • Choix justifié d'un sujet et d'un objectif de communication.
3. Rechercher l'information dans des discours littéraires ou non littéraires.	<ul style="list-style-type: none"> • Choix approprié des sources d'information. • Choix pertinent des éléments d'information.
4. Élaborer une stratégie en fonction de la situation et de l'objectif de communication.	<ul style="list-style-type: none"> • Choix judicieux des procédés à utiliser dans la situation de communication. • Choix judicieux des moyens d'expression.
5. Préparer et présenter des discours oraux de type informatif, critique ou expressif, liés, notamment, à son champ d'études.	<ul style="list-style-type: none"> • Reconnaissance de la contribution de procédés oraux à la conception de son discours. • Recherche de divers moyens d'aborder et de structurer un sujet. • Utilisation pertinente des éléments liés à la présentation d'un discours oral. • Respect de la situation et de l'objectif de communication dans le discours oral. • Précision et richesse du vocabulaire. • Respect des aspects du code linguistique propres au discours oral.
6. Rédiger des textes de type informatif, critique ou expressif, liés, notamment, à son champ d'études.	<ul style="list-style-type: none"> • Reconnaissance de la contribution de procédés d'écriture à la conception de son texte. • Recherche de divers moyens d'aborder et de structurer un sujet. • Respect des règles définissant les différents types de textes. • Respect de la situation et de l'objectif de communication dans le texte écrit. • Précision et richesse du vocabulaire. • Respect des règles orthographiques, grammaticales, syntaxiques et de ponctuation. • Respect des règles de présentation d'un texte écrit.

Enriched General Education Component Common to All Programs and
Enriched General Education Component Specific to the Program

Éléments de la compétence	Critères de performance
7. Réviser et corriger les textes.	<ul style="list-style-type: none">• Utilisation appropriée de stratégies de révision.• Correction appropriée du texte.
Activités d'apprentissage	
Discipline : Français, langue d'enseignement et littérature Périodes d'enseignement : 60 Unités : 2 Précision : L'étude d'un minimum de huit œuvres permet d'atteindre les objectifs de la formation générale en français, langue d'enseignement et littérature.	

Enriched General Education Component Common to All Programs and
Enriched General Education Component Specific to the Program

Humanities	Code: 4HU0
Objective	Standard
Statement of the Competency	
Apply a logical analytical process to how knowledge is organized and used.	
Elements of the Competency	Performance Criteria
1. Recognize the basic elements of a field of knowledge.	<ul style="list-style-type: none"> • Appropriate description of the basic elements • Appropriate use of terminology relevant to a field of knowledge
2. Define the modes of organization and utilization of a field of knowledge.	<ul style="list-style-type: none"> • Adequate definition of the dimensions, limits, and uses of a field of knowledge
3. Situate a field of knowledge within its historical context.	<ul style="list-style-type: none"> • Accurate identification of the main components in the historical development of a field of knowledge • Accurate description of the effects of historical development and social context on the limits and uses of a field of knowledge
4. Organize the main components into coherent patterns.	<ul style="list-style-type: none"> • Coherent organization of the main components
5. Produce a synthesis of the main components.	<ul style="list-style-type: none"> • Appropriate analysis of the components • Coherent synthesis of the main components • Appropriate expression, including a significant individual written component, of an analysis of the context, importance and implications of the organization and uses of knowledge • Appropriate use of revision strategies • Appropriate revision of form and content
Learning Activities	
Discipline: Humanities	
Weighting: 3-1-3	
Credits: 2½	

Objective

Standard

Statement of the Competency

Apply a critical thought process to world views.

Elements of the Competency

Performance Criteria

1. Describe world views.	<ul style="list-style-type: none"> • Accurate description of a society or group with a distinctive world view • Appropriate use of terminology relevant to these societies or groups
2. Explain the major ideas, values, and implications associated with a given world view.	<ul style="list-style-type: none"> • Adequate explanation of the salient components of a world view
3. Organize the ideas, values and experiences of a world view into coherent patterns.	<ul style="list-style-type: none"> • Coherent organization of ideas about a world view • Appropriate expression, including a significant individual written component, of an analysis of the context, importance, and implications of world views
4. Compare world views.	<ul style="list-style-type: none"> • Comparative analysis of these world views • Appropriate inclusion of central elements, relationships, and organizational principles of the societies or groups in the analysis
5. Convey the ideas, attitudes, and experiences of the societies or groups studied.	<ul style="list-style-type: none"> • Coherent integration of the importance and implications of the world views for the given societies or groups • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline: Humanities
 Weighting: 3-0-3
 Credits: 2

Enriched General Education Component Common to All Programs and
Enriched General Education Component Specific to the Program

Humanities

Code: 4HUP

Objective

Standard

Statement of the Competency

Apply a critical thought process to ethical issues relevant to the field of study.

Elements of the Competency

Performance Criteria

1. Situate significant ethical issues in appropriate world views and fields of knowledge.	<ul style="list-style-type: none"> • Accurate recognition of the basic elements of ethical issues • Appropriate use of relevant terminology • Adequate identification of the main linkages with world views and fields of knowledge
2. Explain the major ideas, values, and social implication of ethical issues.	<ul style="list-style-type: none"> • Adequate description of the salient components of the issues
3. Organize the ethical questions and their implications into coherent patterns.	<ul style="list-style-type: none"> • Coherent organization of the ethical questions and their implications • Appropriate expression, including a significant individual written component, of an analysis of the context, importance and implications of the issues
4. Debate the ethical issues.	<ul style="list-style-type: none"> • Adequate development of substantiated argumentation including context and diverse points of view • Clear articulation of an individual point of view • Appropriate use of revision strategies • Appropriate revision of form and content

Learning Activities

Discipline:	Humanities
Periods of instruction:	45
Credits:	2

Physical Education		Code: 4EP0
<i>Objective</i>		<i>Standard</i>
Statement of the Competency		
Analyze one's physical activity from the standpoint of a healthy lifestyle.		
Elements of the Competency		Performance Criteria
1. Establish the relationship between one's lifestyle habits and health.		<ul style="list-style-type: none"> • Proper use of documentation from scientific research or the media • Recognition of the influence of social and cultural factors on the practice of physical activity • Pertinent links made between one's lifestyle habits and the impact they have on health
2. Be physically active in a manner that promotes one's health.		<ul style="list-style-type: none"> • Respect for the rules specific to the physical activity practised • Respect for codes of ethics, safety rules and regulations when being physically active • Respect for one's abilities when practising physical activities
3. Recognize one's needs, abilities and motivational factors with respect to regular and sufficient physical activity.		<ul style="list-style-type: none"> • Appropriate use of strategies for the quantitative and qualitative evaluation of one's physical condition • Overall assessment of one's needs and abilities in terms of physical activity • Overall assessment of one's motivational factors with respect to being sufficiently active on a regular basis
4. Propose physical activities that promote one's health.		<ul style="list-style-type: none"> • Appropriate choice of physical activities according to one's needs, abilities and motivational factors • Use of clear reasoning to explain the choice of physical activity
Learning Activities		
Discipline:	Physical Education	
Weighting:	1-1-1	
Credits:	1	

Objective

Standard

Statement of the Competency

Improve one's effectiveness when practising a physical activity.

Elements of the Competency

Performance Criteria

- | Elements of the Competency | Performance Criteria |
|-----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Plan an approach to improve one's effectiveness when practising a physical activity. | <ul style="list-style-type: none"> • Initial assessment of one's abilities and attitudes when practising a physical activity • Statement of one's expectations and needs with respect to the ability to practise the activity • Appropriate formulation of personal objectives • Appropriate choice of the means to achieve one's objectives • Use of clear reasoning to explain the choice of physical activity |
| 2. Use a planned approach to improve one's effectiveness when practising a physical activity. | <ul style="list-style-type: none"> • Respect for the rules and regulations of the physical activity • Respect for codes of ethics, safety rules and regulations when being physically active • Appropriate use of strategies for the quantitative and qualitative evaluation of one's motor skills • Periodic assessment of one's abilities and attitudes when practising a physical activity • Meaningful interpretation of progress made and the difficulties encountered in the practice of physical activity • Pertinent, periodic and proper adjustments of one's objectives or means • Appreciable improvement in one's motor skills, techniques or complex strategies required by the physical activity |

Learning Activities

Discipline: Physical Education
Weighting: 0-2-1
Credits: 1

Objective

Standard

Statement of the Competency

Demonstrate one's ability to assume responsibility for maintaining a healthy lifestyle through the continued practice of physical activity.

Elements of the Competency

Performance Criteria

1. Plan a personal physical activity program.

- Mention of priorities according to one's needs, abilities, and motivational factors with respect to being sufficiently active on a regular basis
- Proper and appropriate formulation of personal objectives
- Appropriate choice of physical activity or activities to achieve personal objectives
- Appropriate planning of the conditions for performing the physical activity or activities in personal program

2. Combine the elements of a regular and sufficient practice of physical activity as part of a healthy lifestyle.

- Respect for the rules and regulations of the physical activity
- Respect for codes of ethics, safety rules and regulations when being physically active
- Regular and sufficient practice of a physical activity while maintaining a balance between effectiveness and health-promoting factors

3. Manage a personal physical activity program.

- Appropriate choice of criteria for measuring the attainment of program objectives
- Appropriate use of strategies for the quantitative and qualitative evaluation of one's physical activity
- Periodic assessment of the time invested and activities practised during the program
- Appropriate, periodic and proper adjustment of personal objectives or means used
- Meaningful interpretation of the progress made and difficulties encountered in the practice of physical activities
- Recognition of the effect of physical activity on one's lifestyle

Learning Activities

Discipline: Physical Education

Weighting: 1-1-1

Credits: 1

Additional Information

Key Terms Used in Pre-University Programs

Program

A program is an integrated set of learning activities leading to the achievement of educational objectives based on set standards.

Aim

The aim encompasses all of the academic fields identified in a pre-university program in order to prepare students for university. As a whole, the elements of a program—i.e. the aims of college education, common competencies, goals, objectives and standards—help students meet the educational requirements of these academic fields.

Goals

The goals of a pre-university program highlight what the students should learn. Program goals contribute to program coherence, which in turn promotes the integration and transfer of learning. They are in keeping with the program-based approach in that they serve to harmonize the program-specific and the general education components, and give concrete expression to the aim of the program.

Competency

A competency is the ability to act. It includes knowledge, skills and attitudes and refers to the student's demonstrated ability to use his or her knowledge and skills in a given situation.

Objectives

The objectives of pre-university programs determine the results expected of the students. It is by attaining objectives and meeting set standards that the students master the college-level competencies that are deemed essential to successful university studies. In pre-university programs, each objective is formulated in terms of a statement of the competency and its elements.

Standard

A standard is the level of performance at which an objective is considered to be achieved. It is by attaining objectives and meeting the required standards that the students master the college-level competencies that are deemed essential to successful university studies. In pre-university programs, each standard is formulated in terms of performance criteria.

Statement of the competency

The statement of the competency specifies the overall training objective associated with a competency; it is based on expectations identified in an analysis of university education and general education needs.

Elements of the competency

The elements specify the essential components of a competency. They include only what is necessary in order to understand and develop the competency.

Performance criteria

The performance criteria define the requirements for recognition of attainment of a standard. They are not an evaluation framework *per se*, but may serve to develop one. Performance criteria must be taken into account in the evaluation of competency development.

Learning activities

The aspects of learning activities that the Minister can determine, in whole or in part, in a pre-university program include: the field of studies, the discipline(s), the course weighting, the number of periods of instruction, the number of credits, and such specific indications as are deemed essential.

Common objectives and standards

Common objectives and standards determine the core learning content for pursuing university studies in a given field, no matter what specialization a student may have taken.

Objectives and standards of an option

The objectives and standards of an option expose students to an academic field in order to guide them in their university course selection.

Optional objectives and standards

Optional objectives and standards may or may not be implemented by a college. They serve to develop learning activities based on local orientations.

Harmonization of Pre-University Programs and General Education

The harmonization of pre-university programs and general education is part of a lifelong learning approach that makes it easier for college-level students to switch from one pre-university program to another without having to repeat activities for which they have already obtained credit. Additional information on the harmonization of pre-university programs and general education is available on the Ministère's website at:

<http://www.education.gouv.qc.ca/en/colleges/etudiants-au-collegial/college-education/pre-university-programs/>

**Éducation
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