Original Text in French

Arts and Sciences (700.A1)

Pre-University Program

College Education

2022 Version

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Québec

The ***Charter of the French language*** and its regulations govern the consultation of English-language content.

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History

June 2022	Approval of the program
January 2025	Addition, in the optional objectives, of a clarification concerning the application of the *Charter of the French language* at the college level

DÉFINITION DU PROGRAMME D'ÉTUDES

Titre du programme	Sciences, lettres et arts
Type de programme	Programme d'études préuniversitaires
Code et version du programme	700.A1 (2022)
Type de sanction	Diplôme d'études collégiales
Conditions particulières d'admission	Chimie de la 5e secondaire Mathématique, séquence *Technico-sciences* ou *Sciences naturelles*, de la 5e secondaire Physique de la 5e secondaire
Nombre d'unités	59 ⅓
Formation générale	21 ⅓ ou 22 ⅔
Formation spécifique	38 ou 36 ⅔
Nombre de périodes d'enseignement	1 575
Formation générale	525 ou 570
Formation spécifique	1 050 ou 1 005
Champs d'études et disciplines	Sciences de la nature, sciences humaines, littérature, philosophie, mathématique, arts, langues modernes et informatique
Session et année d'entrée en vigueur	Implantation facultative : Automne 2023 Implantation obligatoire : Automne 2025

APPROVALS

Recommandations	**Sous-ministre adjoint aux affaires collégiales et aux interventions régionales**	2023-05-11 **Date**
	Sous-ministre	2023-05-26 **Date**
Approbation de la ministre		2023-06-12 **Date**

DEFINITION OF THE PROGRAM

Program title	Arts and Sciences
Type of program	Pre-university program
Program code and version	700.A1 (2022)
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	59⅓
General education component	21⅓ or 22⅔
Program-specific component	38 or 36⅔
Number of periods of instruction	1575
General education component	525 or 570
Program-specific component	1050 or 1005
Fields of study and disciplines	Science, Social Science, Literature, Humanities, Mathematics, Arts, Modern Languages and Computer Science
Term and year entering into effect	Optional implementation: Fall 2023 Compulsory implementation: Fall 2025

Table of Contents

College-Level Programs

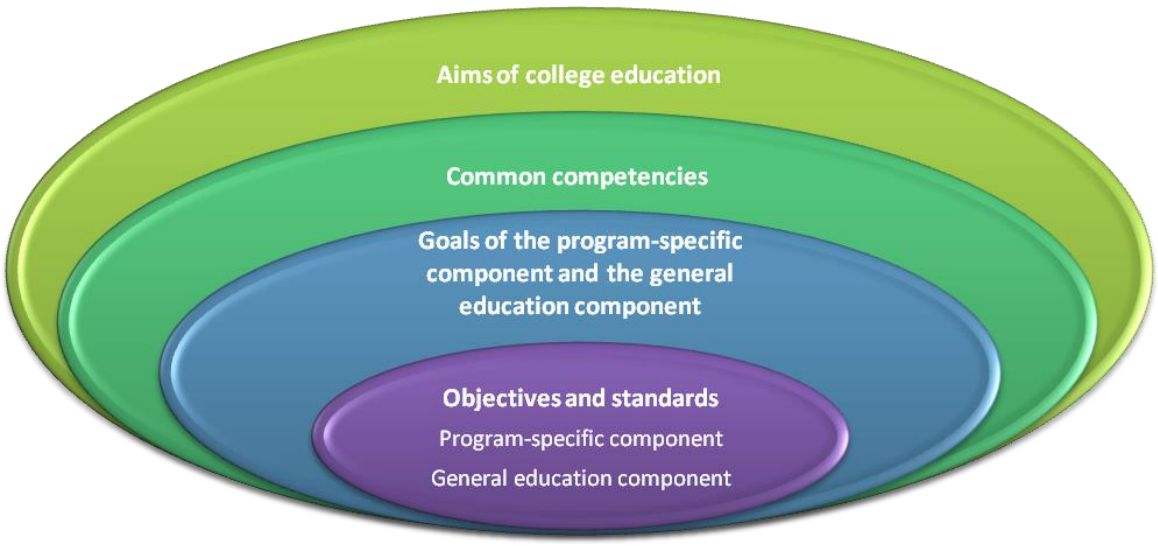
In Québec, college is the next stage after the compulsory years of schooling (elementary and secondary school). College graduates enter the labour market directly or proceed to university studies. The Minister of Higher Education establishes the programs of study, while individual colleges ensure their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

The *Arts and Sciences* program 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 *Arts and Sciences* program includes three components: a program-specific component, a general education component that is common to all programs, and a general education component that is specific to the program. The program does not include a complementary general education component, given that the goals of such a component are met through the diversity of the fields of knowledge covered.

The *Arts and Sciences* program can be implemented in one of two ways, at the institution's discretion:

Long program-specific component

- The program-specific component consists of 38 credits.
- The general education component that is common to all programs consists of 15⅓ credits:
  - Language of Instruction and Literature: 7⅓ credits
  - Philosophy or Humanities: 4 credits
  - Physical Education: 2 credits
  - Second Language: 2 credits
- The general education component that is specific to the program consists of 6 credits:
  - Language of Instruction and Literature: 2 credits
  - Philosophy or Humanities: 2 credits
  - Second Language: 2 credits

or Short program-specific component

- The program-specific component consists of 36⅔ credits.
- The general education component that is common to all programs consists of 16⅔ credits:
  - Language of Instruction and Literature: 7⅓ credits
  - Philosophy or Humanities: 4⅓ credits
  - Physical Education: 3 credits
  - Second Language: 2 credits
- The general education component that is specific to the program consists of 6 credits:
  - Language of Instruction and Literature: 2 credits
  - Philosophy or Humanities: 2 credits
  - Second Language: 2 credits

Aim of the Program

The *Arts and Sciences* program offers students a diversified and rigorous curriculum comprising general education and program-specific components that draw on a variety of disciplines in science, social science, literature and the arts.

It enables them to select courses that will allow them to pursue university studies in a wide range of programs, except for those that have special conditions for admission (e.g. auditions, presentations, portfolios, additional courses).

Goals of the Program

Program-Specific Component

At the end of the *Arts and Sciences* program, students will be able to:

- Draw on basic subject-specific knowledge and elements of general culture
- Deal with a variety of situations from an interdisciplinary perspective
- Use work methods and digital technologies adapted to the various disciplines
- Communicate clearly and in a structured manner, and adopt a collaborative spirit

Draw on basic subject-specific knowledge and elements of general culture

Students develop a scientific mindset and apply critical thinking skills by learning about the theoretical and methodological approaches and the different interpretations of the various disciplines. They deepen their subject-specific knowledge and open their minds to new disciplines. This diversity of viewpoints allows them to apply discernment and objectivity to their understanding of the complexity of the world.

Thus, at the end of the program, students will be able to situate and relate the objects and phenomena studied in the different disciplines. They will have integrated the related principles, concepts, methods and terminology. In addition, they will be able to:

- establish and illustrate the relationships between the theories, approaches and methodologies specific to the disciplines by situating them in their human, historical, social, cultural, scientific, literary and artistic contexts
- understand the scope and limitations of the scientific approach as a means of determining knowledge and skills
- recognize the contribution of science and technology, literature and the arts to societal development

Deal with a variety of situations from an interdisciplinary perspective

By the end of the program, students will have constructed a set of coherent, complementary and multidisciplinary knowledge and skills. They will be aware of the connections between these items of knowledge and skills, and be able to organize their learning in such a way as to use it effectively in a variety of contexts, giving them a broader perspective on different issues. Thus, at the end of the program, students will be able to take into account more than one discipline with a view to:

- appreciating, analyzing and critiquing works, texts, themes, questions, issues, phenomena and theses

- approaching problems systematically, resolving them and determining the coherence of the results obtained
- doing research and carrying out projects involving various hypotheses, situations, problems and issues

Use work methods and digital technologies adapted to the various disciplines

At the end of their college studies, students will be able to apply methodological skills to ensure the rigour of their work. This involves effectively planning and performing tasks, applying research methods and strategies, and adopting best practices in the laboratory or the workshop. These work methods related to the various disciplines are essential for pursuing university studies.

In addition, students follow the rules and meet the conditions to exploit software and virtual environments in order to support their learning, communicate, create and present content, and process and share information. They select research tools and use them effectively. They comply with the conditions for using information, secure their content, respect intellectual property and privacy, and safeguard their own and others' digital integrity.

Communicate clearly and in a structured manner, and adopt a collaborative spirit

At the end of the program, students will be able to communicate ideas orally and in writing. They will express themselves clearly, accurately and concisely, using the language of instruction correctly and employing speech appropriate to the context. They will use the appropriate terminology, as well as the codes and presentation standards specific to each discipline. In students' second language, the focus is on the development of oral and written comprehension skills.

Students draw on their ability to adapt and cooperate in order to connect with others and to occupy different roles in a work team. They contribute to the achievement of common goals and consensus by knowing how to reconcile and deal with divergent opinions. The quality of their exchanges is based on their ability to listen to others, as well as on their understanding that different points of view exist.

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

The general education components that are common to all programs and specific to the program contribute to the development of 12 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

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

French as a Second Language

Students who have achieved the general education objectives in French as a Second Language

- will be able to demonstrate their knowledge of the following:
  - different reading techniques
  - the formal elements needed to produce a structured text, both orally and in writing
  - different forms of discourse and their specific uses

- will be able to demonstrate their ability to do the following:
  - question, analyze, judge and defend an argument in French
  - reflect on their knowledge and actions notably by revising their written productions
  - maintain social relationships and share in the cultural life of Québec
  - establish and maintain work-related relationships in French

- will be encouraged to develop: the following attitudes of:
  - openness to the various aspects of Québec culture
  - recognition and promotion of creativity
  - readiness to participate in social and economic life

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
36⅔ credits and 1005 periods of instruction or 38 credits and 1050 periods of instruction

Common Objectives

7LP1	Discourse on the role and importance of literature and the humanities in understanding the human experience
7MA1	Analyze scientific problems by applying differential calculus
7MA2	Analyze scientific problems by applying integral calculus
7MA3	Analyze data and problems related to the sciences using statistical methods and probability concepts
7MA4	Analyze data and problems related to the sciences using linear algebra and vector geometry concepts
7BL1	Explain the organization and the diversity of living organisms from an evolutionary and ecological perspective
7CH1	Analyze the chemical and physical properties of matter and its transformations
7PH1	Analyze physical situations and phenomena using the fundamental laws and principles of classical mechanics
7HS1	Explain the development of Western civilization by studying its historical legacies from Antiquity until today
7PS1	Explain human behaviour, mental processes and the reciprocal influence of groups and individuals
7SC1	Explain social changes from a sociological perspective
7AR1	Analyze works of art from different periods
7AR2	Create two- and three-dimensional artworks
7SLA	Demonstrate the integration of learning in the *Arts and Sciences* program

Optional Objectives

At least one objective to be met from the following:

7EC1	Explain the key foundations and issues of the economy in the 20th and 21st centuries
7SP1	Explain the main conflicts and issues in international politics in the 20th and 21st centuries

At least two objectives to be met from the following:

7BL2	Analyze how the human body functions from an evolutionary perspective
7CH2	Analyze the structure and reactivity of organic molecules
7PH2	Analyze physical situations and phenomena using the fundamental laws and principles of electricity and magnetism
7PH3	Analyze physical situations and phenomena using the fundamental laws and principles of waves and modern physics

At least one objective to be met from the following:

7AR3	Produce an artistic project with a focus on creation or interpretation
7SH1	Analyze contemporary issues from the perspective of one or more disciplines in the social sciences

Other optional objectives[1]:

01YM	Communicate at a rudimentary level in a modern language
01YN	Communicate on familiar subjects in a modern language
01YP	Communicate with a certain degree of ease in a modern language
0F01	Develop software programs to automate problem solving in a scientific context

[1] Objective 4UF0, which is among the three preparatory objectives for passing the *épreuve uniforme de français* intended for students enrolled in an English college (cf. *Objectifs préparatoires à la réussite de l'épreuve uniforme de français*), may also be included among the other optional objectives. In the *Arts and Sciences* program, the code for this objective if 0UF0.

General Education Component Common to All Programs and General Education Component Specific to the Program
15⅓ credits and 375 periods of instruction or 16⅔ credits and 420 periods of instruction, 6 credits and 150 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

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

French as a Second Language

One objective to be met from the following:

4SF0	Apply basic concepts for communicating in standard French
4SF1	Communicate in standard French with some ease
4SF2	Communicate with ease in standard French
4SF3	Explore a cultural and literary topic

One objective to be met from the following:

4SFP	Apply basic concepts for communicating in French in relation to the student's field of study
4SFQ	Communicate in French on topics related to the student's field of study
4SFR	Communicate with ease in French on topics related to the student's field of study
4SFS	Produce a text in French on a topic related to the student's 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: 7LP1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Discourse on the role and importance of literature and the humanities in understanding the human experience.	

Elements of the Competency	**Performance Criteria**
1. Describe the relationships between literature and the humanities.	• Coherent situation of literary works and the humanities in their movement or historical context • Accurate recognition of the elements of works in literature and the humanities • Accurate recognition of the relationships and similarities between works in literature and the humanities, or between works in the humanities and literature
2. Assess the contributions of literature to the humanities, or of the humanities to literature.	• Relevant illustration of meaningful elements in works in literature or the humanities • Accurate characterization of the treatment of the elements selected in literature or the humanities
3. Explain the contribution of literary works or the humanities in understanding the human experience from an interdisciplinary perspective.	• Accurate characterization of the human experience reflected by the works • Establishment of relevant connections with other disciplines in the program • Critique of the treatment of the human experience reflected by the works in literature or the humanities • Appropriate presentation and relevant format [1]

Learning Activities

Indications:

- This is an enrichment competency acquired after completion of the learning activities associated with the seven competencies in the general education component that are common to all programs and specific to language of instruction and literature, and the humanities. It involves contact with at least 14 complete or partial works in literature and at least 6 in the humanities. These works can be textual, dramatic, representational, cinematographic, etc.

[1] Examples of relevant formats: dissertation, oral presentation, discussion group, artistic or critical production (play, video, digital work, literary composition, essay).

Code: 7MA1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze scientific problems by applying differential calculus.	• Accurate recognition of the context in which differential calculus emerged • Proper use of language and concepts in the application of differential calculus [1] • Correct use of mathematical terminology and syntax • Algebraic manipulations in accordance with established rules • Demonstration of rigorous mathematical reasoning through the use of concepts, properties and theorems

Elements of the Competency	**Performance Criteria**
1. Determine the limit of a function.	• Accurate algebraic and graphical determination of the limit of a function • Accurate determination of infinite limits and limits at infinity • Correct use of algebraic manipulations for evaluating an indeterminate form [2] • Accurate determination of the continuity of a function at a point and on an interval
2. Determine the derivative function.	• Correct distinction between the average rate of change and the instantaneous rate of change • Correct use of the definition of the derivative • Exact calculation of the derivative function • Accurate interpretation of the derivative function • Relevant application of derivative rules and formulas [3]
3. Use the methods of differential calculus in mathematical applications.	• Accurate determination of the equation of the tangent line to a function at a point • Accurate use of L'Hospital's rule for evaluating indeterminate forms [2] • Relevant application of the methods of differential calculus to analyze a function [4]
4. Carry out the analysis of problems related to the sciences.	• Application of appropriate methods of differential calculus • Correct resolution of problems involving rates of change • Correct resolution of optimization problems • Accurate interpretation of results

Learning Activities

Discipline:	Mathematics
Weighting:	2-2-2
Credits:	2
Periods of instruction:	60
Indications:	

Additional information on content:

[1] Previously acquired concepts:

- Algebraic expressions: factoring, simplification and operations on algebraic fractions, division by a polynomial, common denominators
- Solving equations and inequalities
- Graphical representations of basic functions: algebraic, piecewise, exponential, logarithmic, trigonometric (sine, cosine, tangent)
- Main characteristics of a function: zeroes, *y*-intercept and signs of the function
- Laws of exponents and properties of logarithms
- Use of the standard unit circle and of relevant trigonometric identities

Concepts to be acquired:

- Domain of a function containing rational expressions, nth roots of a polynomial and logarithms
- Graphical representations of basic functions: inverse trigonometric functions (arcsine, arctangent)

[2] Indeterminate forms: $\frac{0}{0}, \frac{\pm\infty}{\pm\infty}$

[3] Rules of derivatives: usual rules (addition, subtraction, multiplication by a scalar, product, quotient), higher order derivatives, chain rule, implicit derivation

[4] Analysis of a function:

- domain, zeroes and *y*-intercept
- vertical and horizontal asymptotes
- intervals of increase and decrease, relative and absolute extrema
- intervals of concavity and inflection points
- sketch of the function graph

Code: 7MA2

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze scientific problems by applying integral calculus.	• Accurate recognition of the context in which integral calculus emerged • Correct use of mathematical terminology and syntax • Algebraic manipulations in accordance with established rules • Demonstration of rigorous mathematical reasoning through the use of concepts, properties and theorems

Elements of the Competency	**Performance Criteria**
1. Evaluate the limit of a function yielding an indeterminate form.	• Correct recognition of indeterminate forms [1] • Accurate manipulation of indeterminate forms • Accurate determination of a limit using L'Hospital's rule
2. Determine the indefinite integral of a function.	• Correct use of the basic derivative rules and formulas in order to determine an antiderivative • Correct use of the substitution rule (change of variables) • Relevant application of the rules, formulas and some common integration techniques [2]
3. Determine the definite integral of a function over an interval.	• Correct use of the definition and properties of the definite integral • Correct use of the Fundamental Theorem of Calculus
4. Expand functions into power series.	• Accurate determination of the general term of a series • Appropriate determination of the convergence or divergence of real series • Accurate determination of the interval of convergence of a power series • Accurate determination of the Maclaurin series expansion of a function
5. Use the methods of integral calculus in mathematical applications.	• Appropriate graphical representation of a bounded region • Accurate determination of the area of a bounded region • Accurate determination of the volume of a solid of revolution [3] • Accurate determination of an improper integral • Accurate determination of the integral of a function using a Maclaurin series expansion
6. Carry out the analysis of problems related to the sciences.	• Rigorous use of the methods of integral calculus • Correct resolution of problems using series and definite and indefinite integrals • Correct resolution of problems using separable differential equations • Accurate interpretation of results

Learning Activities	
Discipline:	Mathematics
Weighting:	2-2-2
Credits:	2
Periods of instruction:	60
Indications:	

Additional information on content:

[1] Indeterminate forms: $\infty - \infty$, $0 \cdot \infty$, $(0^+)^0$, $1^{\pm\infty}$, ∞^0

[2] Common integration techniques: integration by parts, and at least one technique from among the following: trigonometric substitutions or decomposition into a sum of partial fractions

[3] Methods: disks and cylinders

Code: 7MA3

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze data and problems related to the sciences using statistical methods and probability concepts.	• Accurate recognition of the context in which situations involving the use of statistics and probability emerged • Appropriate use of terminology used in the field • Correct use of mathematical syntax • Appropriate use of statistical tools • Appropriate use of the necessary technologies • Algebraic manipulations in accordance with established rules • Demonstration of rigorous mathematical reasoning by using concepts, properties and theorems • Attention to the quality of English and the way ideas are expressed

Elements of the Competency	**Performance Criteria**
1. Use descriptive statistical methods to process data in contexts related to the sciences.	• Appropriate representation of a frequency distribution in the form of a table or graph • Appropriate calculation of measures of central tendency, variability and position • Accurate interpretation of tables, graphs, measurements and constructed data
2. Use probability concepts in mathematical applications or in contexts related to the sciences.	• Correct use of counting techniques [1] • Appropriate use of probability visualization tools [2] • Exact calculation of the probability of an event [3] • Appropriate construction of the probability distribution of a discrete random variable • Accurate calculation of the expected value and standard deviation of a discrete random variable • Correct resolution of problems involving the laws of probability [4]
3. Use statistical inference methods to characterize a population in contexts related to the sciences.	• Choice of sampling method adapted to the context • Accurate recognition of conditions for applying the Central Limit Theorem • Accurate interpretation of the margin of error • Appropriate estimation by confidence interval [5] • Correct use of hypothesis testing [6] • Accurate interpretation of the result of a hypothesis test • Accurate interpretation of the type I error and the p-value • Correct resolution of problems calling for the use of the statistical inference method

4. Determine the nature and intensity of the relationship between two variables in contexts related to the sciences.	• Appropriate graphical representation of a scatter plot and the regression line • Accurate determination of the equation of the regression line • Correct resolution of problems involving the regression line concept • Correct resolution of problems involving the chi-square test of independence • Appropriate calculation of coefficients [7] • Accurate interpretation of coefficients [7]

Learning Activities

Discipline: Mathematics

Indications:

Examples of content:

[2] Visualization tools: Venn diagram, probability tree, double entry table

Additional information on content:

[1] Counting techniques: permutation, arrangements and combinations

[3] Probability of an event: probabilities of dependent events, probabilities of independent events, conditional probabilities

[4] Laws of probability: binomial distribution and normal distribution

[5] Estimation of a confidence interval using the:
- mean of a large sample ($n \geq 30$)
- mean of a small sample ($n < 30$)
- proportion of a large sample ($n \geq 30$)

[6] Hypothesis test using:
- the mean of a large sample ($n \geq 30$)
- the mean of a small sample ($n < 30$)
- the proportion of a large sample ($n \geq 30$)
- independent or paired samples

[7] Coefficients: linear correlation coefficient and coefficient of determination

Code: 7MA4

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze data and problems related to the sciences using linear algebra and vector geometry concepts.	• Accurate recognition of the context in which linear algebra and vector geometry emerged • Correct use of mathematical terminology and syntax • Algebraic manipulations in accordance with established rules • Demonstration of rigorous mathematical reasoning through the use of concepts, properties and theorems

Elements of the Competency	**Performance Criteria**
1. Use the language of matrices.	• Correct recognition of specific matrices [1] • Correct operations on matrices [2] • Appropriate use of the properties of determinants • Exact calculation of the determinant of a matrix
2. Manipulate two- and three-dimensional geometric and algebraic vectors.	• Correct identification of the characteristics of vectors [3] • Use of appropriate vector operations [4] • Appropriate graphical representations of vectors in the Cartesian plane and in Euclidean space • Accurate interpretation of linear independence and dependence of vectors • Accurate use of a basis • Accurate determination of the orthogonal projection • Accurate determination of vector products [5]
3. Represent lines and planes in Euclidean space.	• Accurate determination of equations for lines and for planes [6] [7] • Appropriate graphical representation of lines and planes • Accurate determination of the relative position between lines and planes
4. Use the methods of linear algebra and vector geometry in mathematical applications.	• Accurate determination of the inverse of a matrix • Correct use of matrix methods to solve systems of linear equations [8] • Accurate interpretation of the types of solutions of systems of linear equations • Exact calculation of distances and angle measurements • Accurate determination of the intersection between lines and planes • Rigorous proofs of propositions
5. Apply linear algebra and vector geometry concepts to solve problems related to science.	• Rigorous use of linear algebra and vector geometry methods • Correct resolution of problems using matrices • Correct resolution of problems using vectors • Relevant application of vector products • Accurate interpretation of results

Learning Activities	
Discipline:	Mathematics
Weighting:	2-2-2
Credits:	2
Periods of instruction:	60
Indications:	

Additional information on content:

[1] Specific matrices: identity, zero, symmetric, antisymmetric, diagonal, triangular, reduced row echelon form and transposed

[2] Matrix operations: addition, scalar multiplication, multiplication of matrices and calculation of the inverse matrix

[3] Characteristics of vectors: magnitude, sense, direction and angles

[4] Vector operations: addition, subtraction, scalar multiplication and linear combination

[5] Vector products: dot product, cross product and triple scalar product

[6] Line equations: vector, parametric and symmetric

[7] Equations of a plane: vector, parametric and Cartesian

[8] Methods of solving: Gauss, Gauss-Jordan and inverse matrix

Code: 7BL1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Explain the organization and the diversity of living organisms from an evolutionary and ecological perspective.	• Appropriate use of terminology • Appropriate consideration of the contribution of the theory of evolution to our understanding of living organisms • Appropriate contextualization of the levels of organization of living organisms and their regulation • Appropriate consideration of the relationships between structures and functions • Appropriate contextualization of biotechnologies and their applications [1]

Elements of the Competency	**Performance Criteria**
1. Characterize the structures and functions of living organisms.	• Brief description of the general properties of viruses, prokaryotic cells and eukaryotic cells • Accurate description of the structure and functions of macromolecules • Accurate description of the role and functioning of biological catalysts
2. Characterize the fundamental cellular processes of living organisms.	• Accurate recognition of the functions of cellular components • Accurate distinction of membrane transport mechanisms • Clear description of the various energy metabolisms and their respective roles [2] • Accurate description of the processes of the cell cycle, including the phases of cell division • Accurate description of the mechanisms of functional or mutated protein synthesis
3. Explain the diversity, common origin and adaptive evolution of living organisms.	• Accurate recognition of the evidence of evolution, its mechanisms, its impact on the diversity of living organisms and the importance of natural selection • Accurate distinction of factors leading to the adaptive and reproductive success of individuals in a population • Accurate correlation between phylogenesis, genetic proximity and shared morphological characteristics
4. Explain the transmission of inherited traits.	• Correct application of models of heredity [3] • Relevant connections made between molecular genetics, cell division and the transmission of hereditary characteristics
5. Explain the fundamentals of ecology and the impact of human activity on the biosphere.	• Accurate description of the main components of an ecosystem • Accurate characterization of intraspecific and interspecific interactions of living organisms • Accurate description of the behaviour of matter and energy in an ecosystem [4] • Accurate characterization of the factors that upset the equilibrium of ecosystems • Accurate characterization of human activities affecting environmental health

6. Verify biological concepts, using an experimental method.	• Appropriate application of the steps in an experimental approach • Appropriate use of laboratory techniques, equipment and measurement apparatus • Observance of the rules for the safe handling and disposal of raw and residual materials • Relevant correlation between the structures or phenomena observed and biological concepts • Compliance with the experimental protocol • Appropriate presentation of the steps in the experimental approach in a relevant format • Effective contribution to teamwork

Learning Activities

Discipline: Biology

Weighting: 3-2-3

Credits: 2⅔

Periods of instruction: 75

Indications:

Examples of content:

[1] Ethical issues
Biotechnologies and applications:
- plasmids
- restriction enzymes
- DNA amplification and cloning
- genetic modification methods and gene therapy

[3] Models of inheritance:
- Mendelian genetics
- incomplete dominance
- codominance and pleiotropy
- multiple alleles
- epistasis
- polygenic heredity
- X-linked characteristics

[4] Behaviour of matter and energy:
- main biogeochemical cycles
- food webs
- energy transfers

Additional information on content

[2] Energy metabolisms:
- cellular respiration
- fermentation
- photosynthesis

Code: 7CH1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze the chemical and physical properties of matter and its transformations.	• Appropriate use of terminology • Observance of mathematical and chemical formalism • Demonstration of rigour in the problem-solving approach • Accurate application of nomenclature rules of inorganic compounds • Consideration of environmental issues

Elements of the Competency	**Performance Criteria**
1. Explain the properties of the elements and how they relate to the periodic classification.	• Appropriate description of the main characteristics of the probabilistic model of the atom • Appropriate description of atomic orbitals and electron configurations using quantum numbers • Accurate demonstration of the relationship between the electron configuration and chemical properties of elements [1]
2. Predict the structure of matter according to the types of chemical bonds involved.	• Accurate distinction of the types of chemical bonds [2] • Appropriate determination of two- and three-dimensional structures of molecules [3] • Accurate characterization of the types of hybridization • Accurate distinction of the types of orbital overlap
3. Explain the main macroscopic properties of matter.	• Accurate distinction of the types of intramolecular and intermolecular interactions • Accurate determination of the relative strength of interparticle interactions [4] • Relevant correlation between the physical properties of matter and interparticle interactions [5]
4. Analyze different types of chemical changes.	• Accurate determination of the types of chemical changes [6] • Accurate application of the laws of stoichiometry to chemical changes [7] • Correct application of the laws of stoichiometry to acid-base chemical systems [8]
5. Verify some properties of chemical systems and reactions, using an experimental method.	• Appropriate use of laboratory techniques, equipment and measurement apparatus • Compliance with laboratory rules for health, safety and environmental protection • Appropriate data processing [9] • Relevance of the analysis and accuracy of the results • Communication of results according to established requirements • Effective contribution to teamwork

Learning Activities

Discipline: Chemistry

Weighting: 3-2-3

Credits: 2⅔

Periods of instruction: 75

Indications:

Additional information on content:

[1] Periodic properties:
- atomic radius
- first ionization energy
- electronegativity

[2] Types of chemical bonds:
- ionic
- covalent (including polarity)

[3] Structure:
- Linus Pauling diagram including exceptions to the octet rule and resonance
- three-dimensional structure using the valence shell electron pair repulsion (VSEPR) theory

[4] Interparticle interactions:
- covalent or ionic
- ion-dipole
- intermolecular (Van der Waals forces and hydrogen bond)

[5] Physical properties:
- melting and boiling points
- solubility
- electrolytes and nonelectrolytes

[6] Chemical changes:
- oxidation-reduction reactions
- acid-base reactions
- dissolution and precipitation

[7] Laws of stoichiometry:
- balancing of equations
- calculation of quantities and concentrations
- calculation involving a limiting reactant
- calculation of yield

[8] Acid-base systems:
- calculation of pH
- strong acids and strong bases
- weak acids and weak bases
- buffer systems (Henderson-Hasselbalch equation)

[9] Data processing:
- use of computer tools, including a spreadsheet program
- evaluation of uncertainties
- mathematical processing
- graphical representation

Code: 7PH1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze physical situations and phenomena using the fundamental laws and principles of classical mechanics.	• Appropriate use of terminology • Compliance with mathematical formalism • Appropriate use and conversion of units of measurement • Clear schematic diagrams of the situation to be analyzed • Accurate distinction of physical quantities associated with classical mechanics • Demonstration of rigour in the problem-solving approach • Display of critical judgment regarding the plausibility of results

Elements of the Competency	**Performance Criteria**
1. Carry out the analysis of physical situations and phenomena using translational and rotational kinematics.	• Exact calculation of the physical quantities associated with kinematics • Accurate graphical determination of the physical quantities associated with kinematics • Rigorous application of kinematic concepts and equations specific to the type of motion [1] • Correct resolution of problems related to kinematics
2. Carry out the analysis of physical situations and phenomena using the laws of dynamics for translation and rotation.	• Presentation of complete and exact free-body diagrams • Exact calculation of physical quantities associated with dynamics [2] • Rigorous application of Newton's laws for bodies in motion [3] • Rigorous application of the conditions of static equilibrium for rigid bodies at rest • Correct resolution of problems related to dynamics
3. Carry out the analysis of physical situations and phenomena using conservation principles.	• Precise calculation of work and physical quantities associated with energy [4] • Rigorous application of the principle of energy conservation to systems [5] • Exact calculation of linear momentum and angular momentum • Rigorous application of the conservation principles of linear momentum and angular momentum to systems • Correct resolution of problems related to conservation principles
4. Verify some laws and principles of classical mechanics, using an experimental method.	• Appropriate use of laboratory techniques, equipment and measurement apparatus • Appropriate data processing [6] • Relevance of the analysis and accuracy of the results • Communication of results according to expected requirements • Effective contribution to teamwork

Learning Activities

Discipline:	Physics
Weighting:	3-2-3
Credits:	2⅔
Periods of instruction:	75
Indications:	

Additional information on content:

[1] Types of motion studied in kinematics:
- motion with constant acceleration in one and two dimensions
- parabolic motion
- uniform and uniformly accelerated circular motion
- rigid-body rotation about a fixed axis

[2] Physical quantities associated with dynamics:
- gravitational force
- contact forces
- torque
- centre of mass (position)
- moment of inertia

[3] Types of motion studied in dynamics:
- translational motion of one or more particles
- circular motion of one particle
- translational motion and rigid-body rotation about a fixed axis

[4] Physical quantities associated with energy:
- translational and rotational kinetic energies
- gravitational potential energy
- elastic potential energy
- power

[5] Systems involving conservative and non-conservative forces

[6] Data processing:
- use of computer tools
- evaluation of uncertainties
- mathematical processing
- graphical representation with a trend line

Code: 7HS1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Explain the development of Western civilization by studying its historical legacies from Antiquity until today.	• Demonstration of critical thinking in the interpretation of the historical legacies of Western civilization [1] • Relevant determination of the causes and consequences that explain the development of Western civilization • Use of appropriate vocabulary • Attention to the quality of English and the way ideas are expressed

Elements of the Competency	**Performance Criteria**
1. Recognize what characterizes the construction of historical knowledge.	• Accurate recognition of the different types of sources used in the field of history • Appropriate contextualization of a primary source • Accurate distinction of historical interpretations
2. Contextualize the development of Western civilization in time and space.	• Accurate correlation of historical legacies and their context • Use of proper chronological and geographical references in order to situate historical heritages in their context
3. Define the economic, political, social and cultural characteristics of Western civilization.	• Relevant factual description of major figures, actors, events and phenomena associated with the historical legacies of Western civilization • Appropriate illustration of the characteristics of Western civilization
4. Explain the linkages between the structures and ideas that contributed to the development of Western civilization.	• Accurate characterization of structures and ideas • Establishment of clear and relevant connections between structures and ideas • Relevant illustration of elements of continuity and rupture
5. Examine the contribution of one historical legacy of Western civilization.	• Appropriate choice of relevant and reliable documentary resources • Appropriate characterization of the historical legacy examined • Relevant reflection on the scope or impact of the historical legacy examined • Production of a clear and well-structured text in compliance with the rules of composition

Learning Activities

Discipline: History

Indication:

[1] Historical legacies: What is transmitted to the next generation; what marked the past and continues to influence the present.

Code: 7PS1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Explain human behaviour, mental processes and the reciprocal influence of groups and individuals.	• Appropriate distinction between human behaviours and mental processes • Appropriate use of recognized terminology • Attention to the quality of English and the way ideas are expressed

Elements of the Competency	**Performance Criteria**
1. Recognize what characterizes the field of psychology.	• Accurate recognition of the focus of psychology • Appropriate description of the emergence of psychology in the fields of science and clinical intervention • Relevant description of the common areas of research and practice in psychology • Accurate recognition of the characteristics of the different research methods
2. Distinguish between the main recognized theoretical approaches.	• Appropriate identification of the main proponents, foundations and concepts associated with the classic theoretical perspectives in psychology • Accurate identification of distinctive features and concepts associated with recently recognized theoretical perspectives in psychology
3. Characterize mental health.	• Accurate recognition of the characteristics of mental disorders • Brief description of the therapies used
4. Characterize the psychological processes at the root of human behaviours and mental processes.	• Accurate description of biological, cognitive and affective processes • Appropriate description of the relationships or interactions between the processes examined • Accurate recognition of the influence of psychosocial factors on the processes examined
5. Describe the reciprocal influence of groups and individuals.	• Accurate description of the construction of social cognitions and attitudes in the individual • Accurate description of social interactions and influences
6. Verify a hypothesis about human behaviours or mental processes, using an experimental method.	• Accurate formulation of a research question • Appropriate choice of relevant and reliable scientific documentary resources • Formulation of a relevant operational hypothesis • Appropriate use of a measurement instrument to verify the hypothesis • Accurate interpretation of results • Presentation of results in compliance with the standards of scientific presentation • Effective contribution to teamwork

Learning Activities	
Discipline:	Psychology

Code: 7SC1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Explain social changes from a sociological perspective.	• Appropriate use of recognized terminology • Attention to the quality of English and the way ideas are expressed

Elements of the Competency	**Performance Criteria**
1. Recognize the specificity of sociology.	• Accurate recognition of the context in which sociology emerged • Accurate description of the focus of sociology • Appropriate recognition of the contribution of sociologists to understanding life in society • Appropriate recognition of social phenomena specific to contemporary society
2. Characterize the main approaches and methods used in sociology.	• Accurate identification of the main theoretical perspectives and classic concepts in sociology • Accurate description of recently recognized theoretical perspectives and concepts in sociology • Accurate identification of the main research methods in sociology
3. Characterize contemporary social changes.	• Illustration of the main characteristics of contemporary social changes • Establishment of clear connections between the theories and concepts and the social changes examined
4. Examine a contemporary social change from a sociological perspective.	• Appropriate choice of relevant and reliable documentary resources • Collection or use of relevant data • Relevant contextualization of the chosen social change • Appropriate description of the chosen social change • Thorough explanation of the chosen social change using sociological theories and concepts • Clear and well-structured presentation in a relevant format

Learning Activities	
Discipline:	Sociology

Code: 7AR1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze works of art from different periods.	• Accurate use of discipline-related vocabulary

Elements of the Competency	**Performance Criteria**
1. Identify the essential elements of works of art.	• Accurate identification of means of expression, genres, techniques and formal characteristics • Appropriate recognition of the elements of artistic language
2. Characterize art movements.	• Detailed description of art movements • Accurate linking of artists and works of art with art movements • Relevant identification of the stylistic characteristics of individual artists or schools
3. Contextualize artistic practices.	• Relevant linking between art movements and artistic practices and the context in which they emerged • Detailed examination of the influences of and interactions with other fields of knowledge • Accurate recognition of the phenomena of continuity and rupture in art
4. Analyze a work of art.	• Choice of relevant and reliable documentary resources • Appropriate use of an analytic method • Appropriate links between the work of art and its sociohistorical context • Accurate description of the characteristics of the work of art • Well-founded interpretation • Coherent formulation of the entire statement

Learning Activities	
Discipline:	Art History

Code: 7AR2

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Create two- and three-dimensional artworks.	• Demonstration of perseverance and effort • Demonstration of studio work ethics • Observance of health and safety rules • Respect for copyright and intellectual property

Elements of the Competency	**Performance Criteria**
1. Explore visual art techniques.	• Accurate differentiation of the visual qualities associated with space, form, material and colour • Accurate distinction of the specific characteristics of visual language associated with two- and three-dimensional works • Proper application of basic two- and three-dimensional art techniques • Appropriate use of visual language
2. Formulate a creative intention.	• Appropriate consideration of instructions or starting point • Creation of coherent preparatory sketches or studies • Consideration of technical and material constraints • Clear statement of the creative intention
3. Produce a work of art.	• Original organization of the elements of visual language • Appropriate use of materials, tools and equipment • Continuous adjustment throughout the working process
4. Explain their choices based on their creative intention and the progress of the work.	• Accurate use of subject-related vocabulary • Relevant connections made between the ideas and solutions retained • Well-founded evaluation of the production

Code: 7SLA

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Demonstrate the integration of learning in the *Arts and Sciences* program.	• Use of relevant and reliable documentary resources in the language of instruction and the second language • Appropriate use of computer tools • Demonstration of effective collaboration • Demonstration of autonomy, rigour, initiative and perseverance

Elements of the Competency	**Performance Criteria**
1. Design a project based on their learning.	• Accurate delineation of a subject involving at least three disciplines [1] • Judicious choice of approach based on the nature of the project • Determination of the learning relevant to the project • Consideration of possible ethical, material, human and environmental constraints in carrying out the project • Detailed planning of the project
2. Carry out the project.	• Appropriate monitoring of the project's progress • Application of an appropriate methodology • Judicious reinvestment of subject-related learning • Accurate connections made between the various disciplines involved in the project
3. Present the project. [2]	• Appropriate summary of the approach, the project and its scope • Clear oral and written communication • Appropriate use of dissemination media
4. Evaluate their process of integration.	• Explicit mention of learning considered relevant to the project • Critical self-evaluation of their contribution to the project, including their strengths and weaknesses

Learning Activities

Indications:

[1] The subject must involve disciplines in at least three of the following subject areas, insofar as the student has acquired or is in the process of acquiring the necessary subject-specific competencies:

- Art
- Literature, Humanities and Modern Languages
- Mathematics and Computer Science
- Science
- Social Sciences

[2] Students must, at least, present the project to their peers.

Optional Objectives and Standards

Code: 7EC1

Objective	*Standard*
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Explain the key foundations and issues of the economy in the 20th and 21st centuries.	• Accurate interpretation of numerical data • Appropriate reference to economic events • Appropriate use of recognized terminology • Attention to the quality of English and the way ideas are expressed

Elements of the Competency	**Performance Criteria**
1. Recognize what characterizes the field of economics.	• Accurate recognition of the focus of economics and current and emerging research methods • Accurate recognition of economic systems and major schools of thought, and their main proponents • Appropriate distinction between the roles and interactions of economic agents
2. Describe the structure of an open and mixed-market economy.	• Accurate recognition of the main economic indicators • Accurate distinction between the phases of the economic cycle • Relevant correlation between economic indicators and the phases of the economic cycle • Accurate description of the stage of the economy using the aggregate model and its determinants • Correct use of an analytical model in a variety of current contexts
3. Describe the effects of economic policies on the standard of living.	• Accurate distinction between fiscal and monetary policy • Accurate recognition of the short-term and long-term effects of economic policies
4. Characterize international economic relations.	• Appropriate description of the main institutions governing international economic relations • Correct use of at least one theory of international trade • Appropriate distinction between the consequences of protectionism and free trade • Accurate recognition of the foreign exchange market
5. Interpret a current social issue from an economic perspective.	• Appropriate contextualization of the issue based on relevant information • Relevant illustration of how economics has contributed to an understanding of the issue selected • Appropriate presentation of the issue using a relevant form of expression

Learning Activities

Discipline: Economics

Indication:

- Code 360 must be used for a course of at least 60 periods targeting competencies 7EC1 and 7SP1.

Code: 7SP1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Explain the main conflicts and issues in international politics in the 20th and 21st centuries.	• Appropriate reference to current events in international politics • Appropriate use of recognized terminology • Attention to the quality of English and the way ideas are expressed

Elements of the Competency	**Performance Criteria**
1. Recognize the specificity of political science.	• Accurate description of the focus of political science • Appropriate recognition of the different fields of study in political science • Accurate recognition of the political and multidisciplinary dimensions of international relations
2. Identify the major schools of thought in international political relations.	• Clear distinction between the characteristics of the major schools of thought • Relevant illustration of current international relations from a critical perspective
3. Identify the role of political actors in international relations.	• Relevant description of the types and characteristics of political actors in international relations • Nuanced distinction of the role of political actors in international political life
4. Describe the major conflicts and issues in international politics.	• Accurate recognition of the components of the major international conflicts and issues • Accurate description of the interactions between the main actors in political conflicts and issues • Description of relevant situations illustrating the influence or power of international political actors
5. Debate an international political issue from opposing perspectives.	• Thorough preparation on the issue for debate using relevant information • Active participation in the study and debating of the issue in an applied context [1] • Demonstration of openness to different points of view

Learning Activities

Discipline: Political Science

Indications:

- Code 360 must be used for a course of at least 60 periods targeting competencies 7EC1 and 7SP1.

[1] Active participation may involve simulations, role play, debates, deliberative assemblies, negotiations, etc.

Code: 7BL2

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze how the human body functions from an evolutionary perspective.	• Appropriate use of terminology • Accurate demonstration of how systems, organs, tissues and cells contribute to the regulation of homeostasis and to the autonomy of living organisms • Consideration of the influence of environmental factors on how living organisms function

Elements of the Competency	**Performance Criteria**
1. Explain the connection between homeostasis and the functioning of multicellular organisms.	• Summary representation of the body as a set of functionally interrelated structures • Appropriate description of the principle of homeostasis • Appropriate characterization of the main regulatory mechanisms of homeostasis
2. Explain the functioning and regulation of the nervous and endocrine systems.	• Accurate description of the structures and functions of the nervous and endocrine systems • Accurate comparison of the communication role of the nervous and endocrine systems • Appropriate description of the mode of action of hormones on their target cells • Appropriate correlation between the physiology of neurons and synaptic transmission and the functioning of the nervous system • Appropriate distinction of the evolutionary adaptations of other animals
3. Explain the functioning and regulation of the cardiovascular and respiratory systems.	• Accurate description of the structures and functions of the cardiovascular and respiratory systems • Accurate correlation between the heart's electrical activity and cardiac physiology • Accurate distinction of the main factors that influence or regulate cardiovascular and respiratory activity • Accurate correlation between the processes of lung ventilation, capillary exchange and gas transport in the blood • Appropriate distinction of the evolutionary adaptations of other animals
4. Explain the functioning and regulation of the immune system.	• Accurate correlation between the structures and functions of the immune system • Summary distinction of the mechanisms of innate and adaptive immunity • Accurate description of the inflammatory response

Elements of the Competency	Performance Criteria
5. Explain the functioning and regulation of the digestive system.	• Accurate description of the structures and functions of the digestive system • Accurate description of the activity of the digestive system • Appropriate distinction of the evolutionary adaptations of other animals
6. Explain the functioning and regulation of one or two other systems. [1]	• Accurate description of the structures and functions of the systems • Accurate distinction of the main factors that influence or regulate the activity of the systems
7. Verify certain ways of regulating homeostasis, using an experimental method.	• Appropriate use of laboratory techniques, equipment, measurement apparatus and technological tools • Observance of the rules for the safe handling and disposal of raw and residual materials • Relevant correlation between the structures or phenomena observed with the systems examined and their regulation • Compliance with the experimental protocol • Appropriate presentation of the steps in the experimental approach in a relevant format

Learning Activities

Discipline: Biology

Indication:

[1] The explanation should include examples that complement learning, but not an exhaustive description of every system.

Code: 7CH2

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze the structure and reactivity of organic molecules.	• Appropriate use of terminology • Demonstration of rigour in the problem-solving approach • Consideration of health or environmental issues

Elements of the Competency	**Performance Criteria**
1. Use the language and symbols of organic chemistry to characterize compounds.	• Adherence to writing conventions for molecules [1] • Accurate application of organic nomenclature rules for simple polyfunctional compounds • Accurate distinction between the different types of isomerisms • Accurate demonstration of the relationships between isomers • Accurate recognition of the categories of molecules of biological interest based on their functional groups [2]
2. Predict certain properties of compounds based on their structure.	• Appropriate use of the principles of solubilization in the context of organic chemistry [3] • Proper correlation between the structure and the physical properties of organic compounds • Appropriate transposition of the relationship between the structure and the physical properties to certain biological applications [4] • Accurate distinction of the main categories of reagents based on their structure [5]
3. Analyze organic reactions.	• Accurate distinction of the main types of organic reactions [6] • Appropriate consideration of the main electronic effects on reactivity [7] • Accurate recognition of the reactivity of the main functional groups • Appropriate representation of the main types of reaction mechanisms [8] • Illustration of the interrelations between kinetic elements and certain chemical mechanisms [9] • Realistic proposal of methods of synthesizing simple organic compounds from given reagents
4. Interpret the reactivity and structure of organic molecules using an experimental method.	• Appropriate use of synthesis, isolation, purification and characterization techniques • Appropriate use of laboratory equipment and measurement apparatus • Compliance with laboratory rules for health, safety and environmental protection • Relevance of the analysis and accuracy of the results [10] • Communication of the results according to expected requirements • Effective contribution to teamwork

Learning Activities

Discipline: Chemistry

Indications:

Additional information on content:

[1] Conventions:
- condensed
- expanded
- skeletal
- perspective

[2] Molecules of biological interest:
- carbohydrates
- amino acids and proteins
- fatty acids and lipids

[3] Principles of solubilization:
- types of solutes: electrolytes/nonelectrolytes
- types of solvents: polar/apolar, protic/aprotic
- miscibility

[4] Suggested biological applications:
- melting point of fatty acids
- bonds and forces of enzyme active sites
- solubility of vitamins
- emulsifiers and micelles
- antioxidants and conjugated systems
- polarity of the cellular bilayer

[5] Categories of reagents:
- nucleophilic reagent
- electrophilic reagent
- acids and bases

[6] Types of organic reactions:
- addition
- elimination
- substitution

[7] Electronic effects:
- inductive effects
- resonance

[8] Main types of reaction mechanisms:
- electrophilic addition
- E1 and E2 reactions
- S_N1 and S_N2 reactions

[9] Kinetic elements:
- reaction order
- catalysis

[10] Analysis of results:
- identification of product or compound
- purity of the product
- reaction yield

Code: 7PH2

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze physical situations and phenomena using the fundamental laws and principles of electricity and magnetism.	• Appropriate use of terminology • Compliance with mathematical formalism • Appropriate use and conversion of units of measurement • Clear schematic diagrams of the situation to be analyzed • Accurate distinction of the physical quantities associated with electricity and magnetism • Demonstration of rigour in the problem-solving approach • Display of critical judgment regarding the plausibility of results

Elements of the Competency	**Performance Criteria**
1. Carry out the analysis of situations and phenomena related to electrostatics.	• Exact calculation of the physical quantities associated with electrostatics [1] • Rigorous application of the concepts, laws and principles related to electrostatics • Correct resolution of problems related to electrostatics
2. Carry out the analysis of situations and phenomena related to electrodynamics.	• Rigorous application of the laws and principles suited for analyzing the movement of charged particles in an electric field • Accurate calculation of the physical quantities associated with electric circuits [2] • Rigorous application of Kirchhoff's laws to direct current circuits [3] • Correct resolution of problems related to electrodynamics
3. Carry out the analysis of situations and phenomena related to magnetism.	• Appropriate description of the characteristics of sources of magnetic fields • Accurate calculation of the magnetic force [4] • Rigorous application of the appropriate laws and principles for the motion of charged particles in a uniform magnetic field • Accurate use of the appropriate equations connecting the magnetic field and the intensity of the electric current • Correct resolution of problems related to magnetism
4. Carry out the analysis of situations and phenomena related to electromagnetic induction.	• Accurate determination of the magnetic flux for a uniform magnetic field • Rigorous application of Faraday's law to situations related to electromagnetic induction • Accurate determination of the direction of induced electric current using Lenz's law • Correct resolution of problems related to electromagnetic induction

Elements of the Competency	Performance Criteria
5. Verify some laws of electricity and magnetism, using an experimental method.	• Appropriate use of laboratory techniques, equipment and measurement apparatus • Appropriate data processing [5] • Relevance of the analysis and accuracy of the results • Communication of the results according to expected requirements • Effective contribution to teamwork

Learning Activities

Discipline: Physics

Indications:

Additional information on content:

[1] Physical quantities associated with electrostatics:
- electric force
- electric field produced by charged particles at rest
- electric potential produced by charged particles at rest
- potential energy of a system of charged particles

[2] Physical quantities associated with electric circuits:
- intensity of the electric current
- electric potential difference (voltage)
- electrical resistance
- capacitance of a capacitor
- electric power provided by an electromotive force
- power dissipated by a resistor
- energy stored in a capacitor

[3] Electrical circuits:
- circuits containing resistors (R)
- circuits containing resistors and capacitors (RC)

[4] Magnetic force:
- exerted on a charged particle
- exerted on a wire with current flowing through it

[5] Data processing:
- use of computer tools
- evaluation of uncertainties
- mathematical processing
- graphical representation with a trend line

Code: 7PH3

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze physical situations and phenomena using the fundamental laws and principles of waves and modern physics.	• Appropriate use of terminology • Compliance with mathematical formalism • Appropriate use and conversion of units of measurement • Clear schematic diagrams of the situation to be analyzed • Accurate distinction of the physical quantities associated with waves and modern physics • Demonstration of rigour in the problem-solving approach • Display of critical judgment regarding the plausibility of results

Elements of the Competency	**Performance Criteria**
1. Carry out the analysis of simple harmonic motion.	• Accurate determination of the characteristics of simple harmonic motion • Rigorous application of the appropriate concepts, laws and principles for analyzing simple harmonic motion • Summary illustration of situations involving the resonance phenomenon • Correct resolution of problems related to simple harmonic motion
2. Carry out the analysis of situations related to wave phenomena.	• Accurate distinction of types of waves [1] • Accurate determination of the characteristics of waves [2] • Rigorous application of the appropriate concepts, laws and principles for analyzing phenomena involving wave propagation • Rigorous application of the appropriate concepts, laws and principles for analyzing phenomena involving interference and diffraction of waves [3] • Correct resolution of problems related to wave phenomena
3. Carry out the analysis of phenomena related to modern physics.	• Accurate description of phenomena using appropriate physics concepts • Rigorous application of the appropriate concepts, laws and principles for analyzing quantum physics phenomena • Rigorous application of the appropriate concepts, laws and principles for analyzing nuclear physics phenomena • Correct resolution of problems involving phenomena related to modern physics
4. Verify some laws associated with waves and modern physics, using an experimental method.	• Appropriate use of laboratory techniques, equipment and measurement apparatus • Appropriate data processing [4] • Relevance of the analysis and accuracy of the results • Communication of the results according to expected requirements • Effective contribution to teamwork

Learning Activities

Discipline: Physics

Indications:

Additional information on content:

[1] Types of waves:
- mechanical and electromagnetic
- travelling and standing
- transverse and longitudinal

[2] Characteristics of waves:
- amplitude
- period and frequency
- wavelength
- speed of propagation
- intensity
- polarization of light

[3] Wave interference and diffraction phenomena:
- double-slit interference
- single-slit diffraction

[4] Data processing:
- use of computer tools
- evaluation of uncertainties
- mathematical processing
- graphical representation with a trend line

Code: 7AR3

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Produce an artistic project with a focus on creation or interpretation.	• Demonstration of discernment • Demonstration of creativity and perseverance

Elements of the Competency	**Performance Criteria**
1. Characterize the production context.	• Nuanced recognition of modes of expression common to different arts disciplines • Appropriate description of the specific characteristics of an artistic discipline • Accurate consideration of the impact of production and dissemination contexts on how works are created and received
2. Design an art project.	• Appropriate use of historical and current references • Clear articulation of ideas based on influences, areas of interest and affinities • Accurate determination of the steps, creative processes and resources to be used • Consideration of organizational constraints
3. Carry out the art project.	• Appropriate use of expressive techniques and processes • Original use of artistic language • Appropriate execution of their responsibilities according to the plan • Continuous adjustment throughout the creative process • Appropriate presentation of the production
4. Write a report on their production.	• Accurate assessment of the strengths and weaknesses of the artistic production • Constructive participation in the evaluation of their engagement and presence • Demonstration of openness to criticism • Accurate use of subject-specific vocabulary

Code: 7SH1

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Analyze contemporary issues from the perspective of one or more disciplines in the social sciences.	• Appropriate use of recognized terminology • Attention to the quality of English and the way ideas are expressed

Elements of the Competency	**Performance Criteria**
1. Define the contemporary issues examined.	• Clear description of the facts about the issues • Appropriate contextualization of the issues in time and space
2. Characterize the main concepts, methods or disciplinary approaches that could help understand the issues.	• Appropriate description of the main concepts, methods or disciplinary approaches • Relevant correlation between the concepts, methods or disciplinary approaches, and the facts
3. Analyze one of the issues from the perspective of one or more social science disciplines.	• Selection of relevant information about the issue in the language of instruction and the second language • Formulation of a relevant question which reflects an understanding of the issue • Appropriate use of concepts, methods or approaches • Appropriate correlation between the explanatory factors related to the issue

Code: 01YM

Objective	*Standard*
Statement of the Competency	**Achievement Context**

Communicate at a rudimentary level in a modern language.	• For modern Latin-alphabet languages:
	  ○ during a conversation consisting of at least eight lines of dialogue
	  ○ in a written text consisting of at least eight sentences
	• For modern non–Latin-alphabet languages:
	  ○ during a conversation consisting of at least six lines of dialogue
	  ○ in a written text consisting of at least six sentences
	• Based on learning situations on familiar themes
	• Using reference materials

Elements of the Competency	**Performance Criteria**
1. Grasp the meaning of an oral message.	• Correct identification of idiomatic words and expressions • Explicit recognition of the general meaning of simple messages • Logical linking of the elements of the message
2. Grasp the meaning of a written message.	• Correct identification of idiomatic words and expressions • Explicit recognition of the general meaning of simple messages • Logical linking of the elements of the message
3. Explain a simple message orally.	• Correct use of language structures in main and subordinate clauses • Appropriate application of the grammatical rules • Correct use of verbs in the present indicative • Appropriate use of basic vocabulary and idiomatic expressions • Intelligible pronunciation • Logical linking of a series of simple sentences • Spontaneous and logical linking of sentences in a dialogue
4. Write a text on a given topic.	• Appropriate use of language structures in main and subordinate clauses • Appropriate application of the basic rules of grammar • Use of verbs in the present indicative • Appropriate use of basic vocabulary and idiomatic expressions • Logical linking of a series of simple sentences • Acceptable application of the typographic rules for systems of writing other than the Roman alphabet

Learning Activities

Note:

- The acquisition of a modern language requires an awareness of the culture of its native speakers.
- “Rudimentary” refers to the limited use of linguistic structures, grammatical codes and vocabulary. This limitation varies in accordance with the problems posed by some modern languages.

Code: 01YN

Objective	***Standard***
Statement of the Competency	**Achievement Context**

Communicate on familiar subjects in a modern language.	• During a conversation that includes at least 15 lines of dialogue
	• In a written text consisting of at least 20 sentences for Latin-alphabet languages
	• In a written text consisting of at least 10 sentences for non–Latin-alphabet languages
	• Based on:
	  ○ common situations in everyday life
	  ○ simple topics from everyday life
	• Using reference materials

Elements of the Competency	**Performance Criteria**
1. Grasp the meaning of an oral message.	• Correct identification of idiomatic words and expressions • Explicit recognition of the general meaning and essential ideas of messages of medium complexity • Logical linking of the elements of the message
2. Grasp the meaning of a written message.	• Correct identification of idiomatic words and expressions • Explicit recognition of the general meaning and essential ideas of messages of medium complexity • Logical linking of the elements of the message
3. Express a simple message orally using moderately complex sentences.	• Appropriate use of language structures in main or subordinate clauses • Appropriate application of the grammatical rules • Correct use of verbs in the present indicative • Appropriate use of an enriched basic vocabulary and idiomatic expressions • Intelligible pronunciation • Logical linking of a series of moderately complex sentences • Dialogue
4. Write a text on a given subject using moderately complex sentences.	• Appropriate use of language structures in main or subordinate clauses • Appropriate application of the grammatical rules • Correct use of verbs in the present and past indicative • Appropriate use of an enriched basic vocabulary and idiomatic expressions • Logical linking of a series of moderately complex sentences • Acceptable application of the writing rules for systems other than the Roman alphabet

Learning Activities

Note:

- The acquisition of a modern language requires an awareness of the culture of its native speakers.

Code: 01YP

Objective	***Standard***
Statement of the Competency	**Achievement Context**
Communicate with a certain degree of ease in a modern language.	• Working alone • During a conversation consisting of at least 20 lines of dialogue • In a written text of medium length (at least 25 sentences for Latin-alphabet languages and 15 sentences for other languages) • Given documents of a socio-cultural nature • Using reference materials for the written text

Elements of the Competency	**Performance Criteria**
1. Elucidate the meaning of an oral message in current language.	• Accurate explanation of the general meaning and essential ideas of the message • Clear differentiation of the structural features of the language
2. Elucidate the meaning of a moderately complex text.	• Accurate explanation of the general meaning and essential ideas of the text • Clear differentiation of the structural features of the language
3. Discuss a subject.	• Appropriate use of the structural features of the language in accordance with the message to be conveyed • Appropriate use of current vocabulary • Proper pronunciation and intonation • Moderate pace in a dialogue conducted in a current language • Coherence of the message • Relevant answers to questions
4. Write a text of moderate complexity.	• Appropriate use of the structural features of the language in accordance with the text to be written • Accuracy of vocabulary • Overall coherence of the text • Adherence to the rules governing the presentation and writing of the text

Learning Activities

Note:

- The acquisition of a modern language requires an awareness of the culture of its native speakers.

Code: 0F01

Objective	***Standard***
Statement of the Competency	**Performance Criteria for the Competency as a Whole**
Develop software programs to automate problem solving in a scientific context.	• Appropriate use of terminology • Correct use of required software development tools • Observance of program development steps • Respect for digital ethics regarding intellectual property • Demonstration of autonomy, rigour and perseverance

Elements of the Competency	**Performance Criteria**
1. Plan the automation for solving of a problem.	• Appropriate recognition of the concepts involved in a problem • Accurate determination of inputs and outputs • Accurate determination of the necessary processing • Coherent decomposition of the algorithm • Preparation of appropriate test cases to validate the functioning of the program
2. Code the algorithm in the programming language.	• Logical organization of instructions [1] • Appropriate use of basic data types and arrays [2] • Accurate use of arithmetic, relational and logical expressions [3] • Adherence to programming language syntax and conventions [4] • Appropriate use of libraries [5]
3. Verify the program's operation.	• Correct tracing of program execution • Detection of operational errors • Relevance of the corrections made

Learning Activities

Discipline:	Computer science
Weighting:	1-2-3
Credits:	2
Periods of instruction:	45
Indications:	

Additional information on content:

[1] Instructions containing:
- control structures (sequential, conditional and repetitive)
- subroutines

[2] Basic data types of databases that can be used to represent:
- numbers
- Booleans
- character strings

[3] Basic logic operators:
- AND
- OR
- NOT

[4] Characteristics of the programming language used:
- general usage
- common to the sciences
- adapted for introduction to programming in a course of 45 periods of instruction
- can be reinvested in a university context

[5] Libraries for:
- use of structured files (e.g. CSV)
- production of graphics

General Education Component Common to All Programs and 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.	• 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.	• 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.	• 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.	• 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.	• 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:	2⅔

English, Language of Instruction and Literature	Code: 4EA1

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.	• Clear recognition of the formal characteristics of a literary genre
2. Recognize the use of literary conventions within a specific genre.	• 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.	• Appropriate recognition of the relationship of a text to its period
4. Write a critical analysis of a literary genre.	• Selective use of appropriate terminology • Effective presentation of a 1000-word coherent response to a literary text
5. Revise the work.	• 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:	2⅓

English, Language of Instruction and Literature	Code: 4EA2

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.	• 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.	• 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.	• Appropriate identification of expression (explicit/implicit) of a value system in a text
4. Write an analysis on a literary theme.	• Selective use of appropriate terminology • Effective presentation of a 1000-word coherent response to a literary text
5. Revise the work.	• Appropriate use of revision strategies • Appropriate revision of form and content
6. Revise and correct the text.	• Appropriate use of revision strategies. • Appropriate correction of the text.

Learning Activities	
Discipline:	English, Language of Instruction and Literature
Weighting:	2-2-3
Credits:	2⅔

English, Language of Instruction and Literature	Code: 4EAP

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.	• 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.	• Clear and accurate recognition of the main ideas and structure • Appropriate distinction between fact and argument
3. Formulate an oral and a written discourse.	• 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.	• 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

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.	• 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.	• Adequate definition of the dimensions, limits, and uses of a field of knowledge
3. Situate a field of knowledge within its historical context.	• 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.	• Coherent organization of the main components
5. Produce a synthesis of the main components.	• 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:	2-1-3 or 3-1-3
Credits:	2 or 2⅓

Humanities	Code: 4HU1

Objective	***Standard***

Statement of the Competency
Apply a critical thought process to world views.

Elements of the Competency	**Performance Criteria**
1. Describe world views.	• 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.	• Adequate explanation of the salient components of a world view
3. Organize the ideas, values and experiences of a world view into coherent patterns.	• 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.	• 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.	• 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

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.	• 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.	• Adequate description of the salient components of the issues
3. Organize the ethical questions and their implications into coherent patterns.	• 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.	• 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

French as a Second Language (Level I)	Code: 4SF0

Objective	***Standard***

Statement of the Competency
Apply basic concepts for communicating in standard French.

Elements of the Competency	**Performance Criteria**
1. Write and revise a simple text.	• Clear, coherent formulation of a text of about 250 words • Adequate development of the text: intention, topic, reader • Formulation of simple, well-constructed sentences • Use of adequate vocabulary for the task • Satisfactory application of the rules of grammar, in particular agreement in gender and number; regular verbs; verb tenses in the present, compound past and simple future • Satisfactory correction of errors in spelling or grammar • Appropriate use of revision strategies
2. Understand the meaning of a simple text.	• Accurate description of the general meaning and essential ideas of a 500-word text • Accurate identification of the difficulties in understanding the text • Appropriate use of reading techniques • Accurate identification of the main elements of the text
3. Convey a simple oral message.	• Clear and coherent formulation of an oral presentation of at least four minutes • Appropriate use of standard vocabulary • Clear and coherent statements
4. Understand the meaning of a simple oral message.	• Accurate identification of the general meaning and essential ideas of an oral message of at least four minutes • Accurate identification of the difficulties in understanding the message • Accurate description of the general meaning and essential ideas of the message

Learning Activities	
Discipline:	French as a Second Language
Weighting:	2-1-3
Credits:	2

French as a Second Language (Level II)	Code: 4SF1

Objective	***Standard***

Statement of the Competency
Communicate in standard French with some ease.

Elements of the Competency	**Performance Criteria**
1. Write and revise a simple text.	• Writing of a text of about 350 words • Respect for grammar and spelling rules • Appropriate use of the main elements of the corpus • Clear, coherent formulation of sentences • Coherent organization of paragraphs • Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors.
2. Interpret a written text.	• Accurate identification of the main ideas and structure of a text of 700 to 1 000 words • Accurate identification of the main elements of the text • Accurate explanation of the meaning of the words of the text
3. Produce a planned oral text	• Clear and coherent formulation of an oral presentation of at least five minutes • Appropriate use of standard vocabulary • Respect for the level of language and rules of grammar and pronunciation
4. Interpret a simple oral text.	• Accurate identification of the main elements of an oral text of at least five minutes • Accurate identification of the ideas and subjects dealt with in the text • Accurate explanation of the meaning of the words of the text

Learning Activities	
Discipline:	French as a Second Language
Weighting:	2-1-3
Credits:	2

French as a Second Language (Level III)	Code: 4SF2

Objective	***Standard***

Statement of the Competency
Communicate with ease in standard French.

Elements of the Competency	**Performance Criteria**
1. Write a text of moderate complexity.	• Writing of a text of about 450 words • Respect for grammar and spelling rules • Adaptation to the intended audience • Appropriate use of the main elements of the corpus • Clear and coherent formulation of sentences, including at least three that are complex • Coherent organization of paragraphs
2. Revise and correct a text of moderate complexity.	• Appropriate use of revision strategies • Appropriate revision of the text
3. Comment on a written text of moderate complexity.	• Accurate identification of the main elements of a text of between 2 500 and 3 000 words • Accurate explanation of the meaning of the words of the text • Accurate identification of the main and secondary ideas, of facts and opinions • Accurate identification of what is implicit and what is explicit
4. Produce a planned oral text of moderate complexity.	• Clear and coherent formulation of an oral presentation of at least five minutes • Appropriate use of standard vocabulary • Respect for the level of language and rules of grammar and pronunciation • Adaptation to the intended audience • Appropriate sequencing of ideas

Learning Activities	
Discipline:	French as a Second Language
Weighting:	2-1-3
Credits:	2

French as a Second Language (Level IV)	Code: 4SF3

Objective	***Standard***

Statement of the Competency
Explore a cultural and literary topic.

Elements of the Competency	**Performance Criteria**
1. Write a text on a cultural or literary topic.	• Clear and coherent formulation of a text of about 550 words • Respect for the topic • Respect for grammar and spelling rules • Adaptation to the intended audience • Appropriate use of the main elements of the corpus • Clear articulation of a personal point of view
2. Revise and correct a text on a cultural or literary topic.	• Appropriate use of revision strategies • Appropriate revision of the text
3. Analyze a cultural or literary text.	• Personal formulation of the main elements of the text • Identification of the main themes • Identification of clues that help situate the text in its socio-cultural and historical context • Accurate identification of the values expressed • Accurate identification of the structure of the text • Clear articulation of a personal point of view

Learning Activities	
Discipline:	French as a Second Language
Weighting:	3-0-3
Credits:	2

French as a Second Language (Level I)	Code: 4SFP

Objective	***Standard***

Statement of the Competency
Apply basic concepts for communicating in French in relation to the student's field of study.

Elements of the Competency	**Performance Criteria**
1. Write and revise a short text related to the student's field of study.	• Accurate identification of difficulties in writing • Appropriate use of writing techniques • Appropriate use of standard and specialized vocabulary • Clear and coherent formulation of the text • Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors
2. Understand the meaning and characteristics of a text related to the student's field of study.	• Accurate identification of difficulties in understanding the text • Accurate identification of the characteristics of the text • Accurate identification of specialized vocabulary • Accurate identification of the main elements of the text • Accurate description of the general meaning and essential ideas of the text
3. Convey a simple oral message related to the student's field of study.	• Accurate identification of the difficulties in oral expression • Appropriate use of techniques of oral expression • Appropriate use of standard and specialized vocabulary • Intelligible expression of the message
4. Understand the meaning of a simple oral message related to the student's field of study.	• Accurate identification of difficulties in understanding the message • Accurate identification of the characteristics of the message • Accurate identification of specialized vocabulary • Accurate identification of the main elements of the message • Accurate description of the general meaning and essential ideas of the message

Learning Activities	
Discipline:	French as a Second Language
Periods of instruction:	45
Credits:	2

French as a Second Language (Level II)	Code: 4SFQ

Objective	***Standard***

Statement of the Competency
Communicate in French on topics related to the student's field of study.

Elements of the Competency	**Performance Criteria**
1. Write a text related to the student's field of study.	• Appropriate use of specialized vocabulary and of conventions specific to different types of texts • Respect for the level of language and rules of grammar and spelling • Clear and coherent formulation of the text • Appropriate use of writing techniques
2. Revise and correct a text on a topic related to the student's field of study.	• Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors
3. Differentiate the types of texts specific to the student's field of study.	• Accurate identification of the formal characteristics of each of the main types of texts and the conventions used
4. Analyze texts representative of the student's field of study.	• Accurate identification of the main elements of the text • Accurate interpretation of specialized vocabulary • Accurate identification of the ideas and subjects dealt with • Appropriate use of reading and listening techniques

Learning Activities	
Discipline:	French as a Second Language
Periods of instruction:	45
Credits:	2

French as a Second Language (Level III)	Code: 4SFR

Objective	***Standard***

Statement of the Competency
Communicate with ease in French on topics related to the student's field of study.

Elements of the Competency	**Performance Criteria**
1. Produce a text on a topic related to the student's field of study.	• Respect for the topic • Appropriate use of specialized vocabulary and the conventions specific to different types of texts • Respect for the level of language and rules of grammar and spelling • Clear and coherent formulation of the text • Appropriate sequencing of ideas • Appropriate form for the content
2. Revise and correct a text on a topic related to the student's field of study.	• Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors
3. Comment on texts specific to the student's field of study.	• Accurate identification of the formal characteristics of the main types of texts and the conventions used • Accurate explanation of the meaning of the words in the text • Accurate identification of the structure of the text • Accurate reformulation of the main and secondary ideas, of the facts and opinions • Accurate use of specialized vocabulary

Learning Activities	
Discipline:	French as a Second Language
Periods of instruction:	45
Credits:	2

French as a Second Language (Level IV)	Code: 4SFS

Objective	***Standard***

Statement of the Competency
Produce a text in French on a topic related to the student's field of study.

Elements of the Competency	**Performance Criteria**
1. Write a text on a topic related to the student's field of study.	• Respect for the topic • Appropriate use of specialized vocabulary and the conventions specific to different types of texts • Appropriate choice of the main elements of the corpus based on the type of text • Clear and coherent formulation of the text • Respect for the level of language and rules of grammar and spelling • Clear articulation of a personal point of view
2. Revise and correct a text on a topic related to the student's field of study.	• Appropriate use of revision strategies • Satisfactory correction of spelling and grammatical errors
3. Analyze a text related to the student's field of study.	• Precise differentiation of the formal characteristics of specific types of texts • Personal formulation of the main elements • Listing of the main themes • Accurate identification of the structure of the text • Identification of clues that help situate the text in its context • Clear articulation of a personal point of view • Accurate association of elements of the text with the topic

Learning Activities	
Discipline:	French as a Second Language
Periods of instruction:	45
Credits:	2

Physical Education	Code: 4EP0

Objective ***Standard***

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.	• 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.	• 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.	• 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.	• 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

Physical Education	Code: 4EP1

Objective	***Standard***

Statement of the Competency
Improve one's effectiveness when practising a physical activity.

Elements of the Competency	**Performance Criteria**
1. Plan an approach to improve one's effectiveness when practising a physical activity.	• 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.	• 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

Physical Education	Code: 4EP2

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

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. The harmonization document is available on the website of the Ministère.

Enseignement supérieur
Québec