



D'ARCY MCGEE HIGH SCHOOL

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Course Selection Guide Cycle Two – Year Two

Step 1.

Review your course option sheet with your parent(s). Please check to verify that all information is correct. In the event that there is missing information, please pencil it in. **Please note that email will be our primary means of communication with parents for the upcoming school year; keeping this in mind, we ask that you please ensure that you have listed an email address.** In the event that you do not have an email address you will still receive all correspondences from the school.

Step 2.

Select the pathway that you wish to follow: General or Applied. Please note that both of these programs allow a student to enter CEGEP; one pathway is not superior to the other. The major difference is in the instruction approach that is used, specifically in the science courses. Please refer to the attached descriptions for further information.

Step 3.

Indicate whether you are in the Regular or the French Immersion stream by selecting the appropriate box. Please note that if you are currently in the Regular stream, this is the stream that you should remain in. If you are currently in French Immersion, you may choose between Regular and Immersion for the upcoming year.

Step 4.

Choose your Math course keeping in mind the following: students who wish to go into either the Scientific & Technical Math or the Science Math are required to have demonstrated a competency of at least 4 in all three competencies in the Math 306 program. It is equally important to understand that the Cultural, Social & Technical Math does serve as a prerequisite for admission to CEGEP. Please refer to the attached descriptions.

Step 5.

Choose your preferred Arts electives by indicating your top two choices as per the instructions on the sheet. It is important to note that in order to obtain a secondary school diploma in Quebec, the student must receive credit for a secondary four Arts elective.

Step 6.

Choose your preferred Option course as per the directives on your course selection form. Please note that if you wish to take Physics and/or Chemistry in Grade 11 you must choose Science and Technology of the Environment as your option (if you are in Science and Technology) or Science & the Environment as your option (if you are in Applied Science and Technology). It is also important to note that if you wish to take Chemistry and/or Physics in Grade 11 you must have successfully completed either Scientific & technical Math or Science Math.

Step 7.

Return your completed form to Mr. Singfield's office as per the instructions on the form.

Alternative Program

This is a program for academically capable students who have not met with success in a regular high school learning environment. The Alternative Program will give students individualized instruction in core subjects in order to help them achieve the requirements for graduation. Students will be provided with academic and personal support, in order to assist them in achieving their goals. The program consists of a core group of students who will work on specific academic courses in a small group setting with one-to-one assistance from the teachers.

Science and Technology

Topics will be studied through a hands-on approach with an emphasis on the scientific principles, laboratories and application of scientific theory to modern issues. Students will develop opinions with respect to the applications and limitations of science. Students will be evaluated on the following three competencies: 1) Seeks answers or solutions to scientific or technological problems; 2) Makes the most of his/her knowledge of science and technology; and 3) Communicates in the languages used in science and technology.

The Living World	The Material World	The Earth and Space	The Technological World
ECOLOGY	PHYSICAL PROPERTIES OF SOLUTIONS CHEMICAL CHANGES ORGANIZATION OF MATTER ELECTRICITY AND ELECTROMAGNETISM ELECTRICITY ELECTROMAGNETISM TRANSFORMATION OF ENERGY	BIOGEOCHEMICAL CYCLES CLIMATE ZONES LITHOSPHERE HYDROSPHERE ATMOSPHERE SPACE	MECHANICAL ENGINEERING ELECTRICAL ENGINEERING MATERIALS

Applied Science & Technology

Topics will be studied through a hands-on approach with an emphasis on their application to technology. Students will explore technological systems by deconstructing and analyzing the components. Students will be evaluated on the following competencies: 1) Seeks answers or solutions to scientific or technological problems; 2) Makes the most of his/her knowledge of science and technology; and 3) Communicates in the languages used in science and technology.

The Technological World	The Living World	The Material World	The Earth and Space
GRAPHICAL LANGUAGE MECHANICAL ENGINEERING ELECTRICAL ENGINEERING MATERIALS MANUFACTURING	DYNAMICS OF ECOSYSTEMS	CHEMICAL CHANGES ELECTRICITY ELECTROMAGNETISM TRANSFORMATION OF ENERGY FLUIDS FORCE & MOTION	LITHOSPHERE HYDROSPHERE ATMOSPHERE SPACE

Frequently Asked Questions Regarding the Sciences:

- 1. Which science option do I need to graduate?**
 You will graduate with either science option; what is important to remember is that you require one of the two as part of the prerequisites for your high school diploma.
- 2. Can I get into CEGEP with either science option?**
 Yes.
- 3. What science option should I take if I want to go into Pure & Applied Sciences in CEGEP?**
 Both science options enable a student to pursue his/her studies in the Pure & Applied Science program at the CEGEP level.
- 4. Can I switch from Applied Science to General Science when I make my course selection for grade 11?**
 As much as possible we hope that students will choose one science pathway for the entire Cycle Two. It is possible however, to switch science pathways when going into grade 11.

Cultural, Social, & Technical Mathematics

The *Cultural, Social and Technical* option is intended for students who like to design objects and activities, develop projects or participate in making them or carrying them out. It stimulates students' interest in social causes and helps them develop their sense of initiative. It involves a greater use of statistics and discrete mathematics, 2 and emphasizes situations that students will encounter in their personal and professional lives. It brings together aspects of mathematics that will help students become autonomous citizens who are active and thoughtful members of society. The learning content for this option allows students to build on their knowledge of basic mathematics. Specifically, it prepares them for studies in the arts, communications, the humanities and the social sciences.

Arithmetic & Algebra	Statistics & Probability	Geometry & Graphs
Algebraic expression – First-degree inequality in two variables Relation, function and inverse – Real function: polynomial of degree less than 3, exponential, periodic, step, piecewise System – System of first-degree equations in two variables	– Subjective probability – Fairness: odds, mathematical expectation One-variable distribution – Measure of position: percentile – Measure of dispersion: mean deviation Two-variable distribution – Linear correlation: correlation coefficient and regression line	Analytic geometry – Change: distance, slope, point of division – Straight line and half-plane: parallel and perpendicular lines Measurement – Relationships in triangles: sine, cosine, tangent, sine law and Hero's formula

Scientific and Technical Mathematics

The *Technical and Scientific* option is intended for students who wish to explore situations that sometimes involve both manual and intellectual work. The emphasis is on case studies as well as the development of students' ability to identify errors and anomalies in processes or solutions, with a view to defining the problem and taking appropriate corrective action. It also requires students to identify the mathematical concepts and processes associated

with the design, operation or use of certain technical instruments. This option encourages the exploration of different areas of study, but it is especially designed to equip students to work effectively in technical fields related to nutrition, biology, physics, business administration, the fine arts and graphic arts.

Arithmetic & Algebra	Statistics & Probability	Geometry & Graphs
Arithmetic and algebraic expressions – Real numbers: radicals, base 2 and base 10 powers – First-degree inequality in two variables Relation, function and inverse – Real function: second-degree polynomial (standard form), exponential, greatest integer, periodic, step, piecewise – Parameter System – System of first-degree equations in two variables	Conditional probability – Fairness: odds, mathematical expectation One-variable distribution – Measures of dispersion: mean deviation, standard deviation Two-variable distribution – Linear and other correlation: correlation coefficient, regression line	Analytic geometry – Distance between two points – Coordinates of a point of division – Straight line: equation, slope, parallel and perpendicular lines, perpendicular bisectors Measurement – Metric and trigonometric relations in right triangles

Science Mathematics

The *Science* option is intended for students who seek to understand the origin of different phenomena and how they work, as well as to explain them and make decisions that pertain to them. Students learn to develop formal proofs in situations where there is always a need to confirm a truth. By focusing on the properties of mathematical objects, this option places greater emphasis on students' capacity for abstract thinking in that they are required to perform more complex algebraic operations. The emphasis is on finding, developing and analyzing models within the context of experiments mainly related to different scientific fields. Students who choose this option develop strategies and acquire an academic background that specifically enables them to pursue their studies in the hard sciences or to perhaps eventually specialize in research.

Arithmetic & Algebra	Statistics & Probability	Geometry & Graphs
<p>Algebraic expression – Algebraic identity, second-degree equation and inequality in one variable</p> <p>Real function – Step function (greatest integer); second-degree polynomial function (standard, general and factored forms) – Parameter</p> <p>System – System of first-degree equations in two variables – System composed of a first-degree equation and a second-degree equation in two variables</p>	<p>Two-variable distribution – Linear correlation: correlation coefficient and regression line</p>	<p>Equivalent figures Analytic geometry – Straight lines and the distance between two points</p> <p>Measurement – Metric and trigonometric relations in triangles (sine, cosine, tangent, sine and cosine laws)</p>

Frequently Asked Questions Regarding the Mathematics Options:

- 1. Which math option do I need to graduate?**
Students require one of the three secondary 4 math options to graduate.
- 2. Can I get into CEGEP with any of the three math options?**
Yes. You must keep in mind however, that some programs require either the Scientific & Technical Math or the Science Math as a prerequisite (ie. Pure & Applied Sciences, Nursing, Commerce, Computer Science). You are advised to make an appointment with Ms. Maloney in Guidance to discuss post-secondary options.
- 3. Can I switch from one math to another when I make my course selection for grade 11?**
Students are expected to remain in the same math option course during grades 10 and 11.
- 4. Is one math option more difficult than another?**
While all three options provide challenges, overall, the concepts studied in Technical & Scientific Math and Science Math are more complex than those studied in Cultural, Social, & Technical Math; hence, the recommended prerequisite that students demonstrate competency of at least a scale of 4 for all three competencies in Math 306.

Secondary IV Arts Electives

Art

Students will experience, learn about, and express themselves through a whole gamut of art techniques, materials, movements, and philosophies. Students will be expected to step outside their artistic comfort zone and try new things. Research on both an artist and a movement will be expected during the year. Our facilities continue to expand to try and meet the needs of our students; pottery and silk screening have been recent additions to D'Arcy Fine Arts.

Dance

The dance program at Cycle Two Secondary is a continuation of the Secondary Cycle One program and is grounded in the subject specific and artistic learning previously acquired by students. In Cycle Two this learning is consolidated. The development and the interaction occurs among all three competencies: performs dance, creates dance and appreciates dance, contribute to balancing the student's artistic movement.

“In order to achieve a real artistic practice of dance, students are required to further their perception of themselves and of reality because, in a sense, they are the raw material of their art. By using their body, their imagination, their sensitivity and their culture when they create, perform or appreciate dances, they convey who they are and express their world view.” - Quebec Education Program.

Drama

Drama 402 is a performing arts class with a heavy concentration on leadership, communication, participation and teamwork. Students will be expected to master these skills before the end of the year and to use them on a daily basis. High expectations will be placed on the mediums of theatre explored at this level and the levels before it—please note this class is only for those students who either wish to continue their study of performing arts after high school or for those who wish to challenge their leadership and communication skills by using drama as a support medium. As this is the only senior level drama class, high expectations will be placed on those who choose to take this class and to their level of commitment to performance and to the arts.

Music

Students will focus on three competencies: performing, appreciating music and creating music. The music classroom's environment will foster expression, performance, communication and autonomy. Students will use their instrument, imagination and culture to convey who they are and their world-view when they create or perform a musical work. Students will also be encouraged to develop collaborative skills, listening skills and problem solving skills through group ensemble work.

Secondary IV Option Courses

Computer Science and Engineering I

This course is a fusion of two independent fields of science and engineering studies: **Computer Science** and **Computer Engineering**. Although they are very much related in some aspects of their applications they will be offered as two separate modules.

In the Computer Science module, students will be studying practical aspects and main functionalities of an operating system. Besides the direct usage of application software programs, they will also be learning basic programming techniques in which they will apply various strategies to problem solving, program testing and debugging. They will also be applying the processes of designing computer software systems known as “Software Development Life Cycle” (SDLC) and the methodology tools widely used in the systems design world. In addition, some elements of software maintenance and technical support will be introduced.

In the Computer Engineering module, the emphasis is more on the engineering hardware. This is comprised of computer assembly, troubleshooting, and a basic understanding of the internal workings of a computer. Students will also have some exposure to computer communication and networking.

Entrepreneurship

Students will explore the various components of entrepreneurship; namely, 1) self-confidence; 2) motivation; 3) effort; 4) sense of responsibility; 5) initiative; 6) perseverance; 7) solidarity; 8) team spirit; 9) resourcefulness; and 10) determination. All students will be required to develop and launch an extensive entrepreneurship project. The entrepreneurial project will serve as the main assessment tool.

Exploration of Vocational Education

This course will continue directly where the POP (Personal Orientation Project) left off in Secondary III. Particular emphasis will be placed on the exploration of the various vocational options available for students as they begin preparing for the choice of a career path.

Home Economics

Home Economics class will be more than just a chance to do a little cooking and sewing, it will be an exploration of how the everyday choices we make affect the environment, our health and the well being of produces half a world away.

Introduction to Kinesiology

This course will provide students with an overview of topics related to human movement and exercise. Students will explore short and long-term effects of exercise, physical skills and the place of physical activity and sport in our society.

The course will include opportunities to explore a range of professional careers such as athletic therapy, fitness training, sports psychology and physical education.

Course content and evaluation will combine theory and practical application of concepts and skills.

Media Studies

Media Studies takes a critical look at various forms of media found in the everyday world. After analyzing and deconstructing sociological trends and ideologies, students will be able to re-construct their own mediums with the same strategies that mass media target teens with everyday. Students will be able to understand and interpret the millions of messages that they are bombarded with everyday so that they can make critical and informed decisions on their own.

Multimedia & Internet Technology

Given the fast changing pace of the internet technology and the needs of the business world communities, this course was designed to provide students some skills and knowledge of information and communication technology (ICT) in the areas of multimedia and the Internet and their applications in the business environment.

The topics that will be studied in this course include:

- Overview of computer networking, Intranet, Extranet, and the Internet
- Multimedia and animation
- e-business concepts and e-commerce solutions, and web development
- team-based project management and collaboration
- the impact of information and communication technology

Outdoor Education

The student will focus on the relationship between good health and physical activity related to a healthy lifestyle. Students will be introduced to several outdoor activities which they will relate to their abilities, needs, motivation, lifestyle and knowledge of health promotion. Some themes include fitness, safety, nutrition, and lifestyle awareness.

Science & Technology of the Environment

This course uses the same resources as the Science & Technology course. However, it addresses additional concepts and resources. Their assimilation qualifies students in the General Education Path to take Chemistry and Physics in Secondary V. In addition to climate change, the energy challenge, drinking water and deforestation, this course includes the issues of energy, residual materials and food production.

Science & the Environment

This course is intended to help students consolidate and enrich their scientific literacy. It is also intended to make students aware of the importance of considering the short, medium and long term environmental impact of science and to prepare some of them for careers in which they will monitor and assess this impact in their community. Successful completion of this course qualifies students in the Applied Education Path to take Chemistry and Physics in Secondary V.