ST PAUL'S HIGH SCHOOL
GRADE TWELVE COURSES
2008-2009

REQUIRED COURSES

1. Religion 41G (.5 credit)
2. Physical and Health Education 40F (1 credit)
3. English (select one)
   - English 40S (2 credits)
   - AP English 42S (2 credits) (Require 80% or higher in English 30S)
4. Mathematics (select one)
   - Pre-Calculus Mathematics 40S (1 credit)
   - Applied Mathematics 40S (1 credit)
   - Consumer Mathematics 40S (1 credit)

The school reserves the right to decide if a student has shown the aptitude in Mathematics to take either PC Mathematics 40S or Applied Mathematics 40S.

ELECTIVES

Students must select THREE (3) of the following electives. If you want a 4th elective as an extra course (available with permission) please see your Counsellor.

1. Biology 40S (1 credit)
2. Chemistry 40S (1 credit) prerequisite Chemistry 30S, co-Requisite PC or App Math 40S
3. Physics (select one)
   - Physics 40S (1 credit) prerequisite Physics 30S, co-requisite PC or App Math 40S
   - AP Physics 42S(1 credit) prerequisite AP Physics 32S, co-requisite PC Mathematic 40S
4. Computer Science 40S (1 credit), prerequisite Computer Science 30S
5. History 40S (Western Civilization) (1 credit)
6. AP French 42S (1 credit)
7. French 40S (1 credit)
8. Geography 40S (1 credit)
9. Music 40S (1 credit), prerequisite Music 30S
10. World Issues 40S (1 credit)
11. Physical Education 41G (1 credit)
12. Art 40S (1 credit)
13. Psychology 41G (1 credit)
14. Economics 40S (1 credit)
15. Law 40S (1 credit)
16. *Advanced Mathematics (1 credit consisting of: .5 credit Introduction to Calculus; and .5 credit Advanced Topics)

ST PAUL'S HIGH SCHOOL
GRADE TWELVE COURSES
2008-2009 continued…

Note: *Advanced Mathematics may be taken as one of the three required electives OR in addition to three other electives. Places are limited in the **Advanced Mathematics** half-courses. Places will be awarded on the basis of performance in the pertinent subject(s) in the student's Grade 11 year.

EXTRA CREDIT COURSES

1. Jr Jazz Ensemble Music 45S (.5 credit) Audition required in September.
2. Sr Jazz Ensemble Music 45S (.5 credit) Audition required in **March**.
3. Sr Wind Ensemble Music 41G (.5 credit). Approval of the instructor required.

Note: Please remember that there is a limited enrolment in each elective. The school reserves the right to add or cancel courses depending on the number of students in that particular elective. If there are more applicants than the course can accommodate, the school **WILL** assign spaces in that elective starting with the student with the highest marks in previous relevant courses. The school also reserves the right to move the student to the next elective of his choice.

ST PAUL'S HIGH SCHOOL
GRADE TWELVE ELECTIVE COURSE DESCRIPTIONS
2008 – 2009

REQUIRED COURSE OPTIONS:

ENGLISH 40S (2 credits)

OR

ADVANCED PLACEMENT (AP) ENGLISH (English 40S/42S):

This is a course studied over both terms with one instructor. In term one, students earn a credit in English 40S and in term two students earn their Advanced Placement Credit, English 42S. AP English is an advanced and accelerated program and all AP students challenge the AP Exam in the spring of their graduating year. Students who score high grades on the AP Exam may earn a university credit. Students must maintain a minimum 80% average in Grade 11 English if they plan to challenge the AP course. They must also be prepared to do additional reading (a minimum of two novels in the summer) and additional written assignments in order to fulfil course requirements. AP material focuses on the literary classics from a broad representation of literary periods.

MATHEMATICS: **(One of the following three courses must be chosen)**

PRE-CALCULUS MATHEMATICS 40S

Pre-Calculus Mathematics 40S is designed for students who intend to study calculus and related mathematics as part of their post-secondary education. The course comprises, primarily, a high-level study of theoretical mathematics with an emphasis on problem solving, mental mathematics, as well as cumulative exercises and testing. Many of the exercises and problems are expected to be original or different from those presented in class. Topics found in this course include: probability, sequences and series, circular functions, exponential and logarithmic functions, analytical geometry. The student is expected to work both individually and in small groups and must demonstrate a high level of mastery in algebraic operations, an aptitude for problem solving and an ability to effectively communicate both in verbal and in written format the logical steps required to arrive at solution. **This course has a Provincial Standardized Assessment. It is recommended that students should have achieved a mark of 70% or more in Pre-Calculus Mathematics 30S to ensure future success in this programme of study.** Furthermore, a 60% minimum average in Pre-Calculus 40S is a pre-requisite in certain faculties at the university level.

CONSUMER MATHEMATICS 40S
Consumer Mathematics 40S is intended for students whose post-secondary planning does not include a focus on mathematics and science related fields. This course is recognized by the universities as a mathematics elective for first year university entrance. The course is structured into two half courses emphasizing problem analysis, analysis of games and numbers, personal finance, design and measurement, government finances, statistics, life/career project, investments, taxation, and variation and formulas communication. Students are expected to work both individually and in small groups on mathematical concepts and skills encountered in a technological society. There is no pre-requisite to this course. **This course has Provincial Standardized Assessments.**

APPLIED MATHEMATICS 40S
Applied Mathematics 40S is available for students planning to pursue post-secondary studies in mathematics and science. This course is an extension of the ideas and concepts presented in the Applied Mathematics 30S course. The topics include data analysis, spreadsheets, matrix modelling, vectors, personal finance, probability, design and measurement, applications of periodic functions, sequences, and data management. The emphasis is on exploring ideas, alternative solutions to a given problem, probale inferences, and the testing of speculation/hypothesis. Students are required to complete extensive projects, exercises and assignments. Every effort should be made ensure relevance through the use of practical, applied problem solving and to decrease the use of drill exercises and traditional memorization of formulas, algorithms and theorems. **This course has a Provincial Standardized Assessment. The Applied Mathematics 30S is a prerequisite to this course.**

ELECTIVE COURSES:

BIOLOGY 40S

This course is intended to help students develop an understanding of the three broad areas of Biology that are only briefly mentioned in Biology 30S: inheritance, evolution and biodiversity. Biology 30S, which discusses cell theory, homeostasis and human systems is highly recommended but not a necessary prerequisite for students with high averages. Admittance to Biology 40S is highly competitive and is based on: a student's mark in Biology 30S and/or his overall average.

Course topics include: Evolutionary Theory and Biodiversity – Evidence supporting the theory, Darwinian, post-Darwinian notions, evidence supporting the theory, relationship to biodiversity, classification systems and phylogeny; Organizing Biodiversity – Survey of the Six Kingdoms with an emphasis on evolutionary trends and relationships; Understanding Biological Inheritance – chromosome theory, Mendelian genetics, cell division, human inheritance patterns; Mechanisms of Inheritance – molecular biology and the Central Dogma, historical developments, post-Mendelian and molecular genetics, biotechnological applications, stem-cell research; and Conservation of Biodiversity – the value of diversity, conservation and sustainable practices.

CHEMISTRY 40S

The prerequisite for this course is Chemistry 30S. Because it is a continuation of that course, students are expected to have learned the fundamental language, concepts and skills of that program. A minimum of 60% in Chemistry 30S is required for this course. Many Chemistry 30S concepts including solubility, atomic structure, and the Periodic Table will be developed further and applied in new ways. New topics include: the study of reaction rates, chemical equilibrium, atomic structure, and oxidation-reduction reactions.

PHYSICS 40S

The Physics program has a spiral curriculum so the topics begun in Physics 30S will be revisited in the 40S program but will be dealt with in much more depth. The course will expand from these topics to concepts in modern physics and light. A strong aptitude for problem solving is extremely important and a strong mathematical ability (especially in trigonometry) is paramount.

Topics include vector analysis of force and motion, projectiles, circular motion, frictional coefficient and inclines, work and energy, Kepler's Laws and Universal gravitation, Force Fields, Coulomb's Law, electric potential, magnetic fields and forces, electromagnetic induction, AC current, transformers, the nuclear model of the atom, radioactivity, and applications of non-ionizing radiation.

Students will be required to write a number of lab reports. Physics 30S is a prerequisite for this course with a grade of at least 60-65% in that course required; higher is recommended.

ADVANCED PLACEMENT (AP) PHYSICS B 42S

The AP Physics B 42S curriculum consists of the regular physics curriculum supplemented by selected topics in rotational kinematics, thermal physics, capacitors, optics, and nuclear physics. Students will be expected to meet all the course and lab requirements of the 40S program. An AP Physics B examination could be written for credit in May. The AP Physics B course is a non-calculus approach to Physics and so would not provide advanced placement into calculus based first year courses. This program would, however, give the student exposure to a broad range of topics not covered in the regular program and to content at a more challenging level. Because of the pace of the course, the large curriculum only very strong Physics students with very good problems solving skills should consider this program. AP Physics 32S is a pre-requisite for this course. Students must also be able to work well on their own. The school recommends/ expects a minimum mark of 70-75% in AP Physics 32S for the student to continue into this course.

COMPUTER SCIENCE 40S

In this course students will continue to use the C++ programming language as a problem solving tool. Students will be introduced to advanced programming techniques such as object oriented programming, linked lists, binary trees, recursion, stacks and queues. Other topics to be included are: computer language translation, systems analysis, and recent advances in computer hardware and software. The prerequisite for this course is Computer Science 30S.

HISTORY: WESTERN CIVILIZATION 40S

This course covers the history of western civilization, beginning with the ancient Greeks and ending with the present day. The areas to be considered will be Greek and Roman societies, the Medieval world, the Renaissance and Reformation, the rise of absolute monarchies, revolutions, and reactions, the growth of nationalism, World Wars I and II. The course is designed to stimulate discussion and to develop in students a deeper understanding of our culture's roots and traditions.

ADVANCED PLACEMENT (AP) FRENCH 42S

Le cours de français secondaire trois est pré-requis ou la permission du chef de département est requise.
Ce cours est axé sur l'expression orale. Il vise à approfondir les connaissances linguistiques des étudiants à travers l′étude de documents authentiques. Les étudiants seront appelés à visionner plusieurs bulletins d′informations, des films et des vidéo-clips; à faire des recherches sur Internet, à profiter des logiciels qui leur sont disponibles au laboratoire de langues, à monter plusieurs saynètes à partir de dialogues étudiés et à participer activement aux nombreuses discussions en classe. Ils auront à améliorer leur français écrit également en maîtrisant les concepts grammaticaux suggérés par le curriculum du Ministère et en faisant appel à la composition basée sur les thèmes de Advanced Placement. Plusieurs des présentations orales seront aussi tirées des thèmes de Advanced Placement.

FRENCH 40S

The prerequisites for this course are French 30S, AP French 32S, or the approval of the Department Head.
This course is designed to reinforce and further develop the reading, writing, listening and speaking skills acquired at the Grade Eleven level. The emphasis will be on everyday conversation and on current events and themes of general interest published on the Internet.

Students will be invited to improve their proficiency in French by participating actively in classroom discussions, by preparing skits in small groups, by regularly consulting specific French sites on the Internet and by working independently with interactive software in the Language Lab.
Testing will include both written and oral examinations.

GEOGRAPHY 40S

The central theme of the Geography course is human responsibility within the global community. The course stresses the interdependent nature of mankind in geographic, economic and political terms. This course will focus on population studies, human - environment relationships, quality of life, resource and energy, urbanization, scarcity and choice and supply and demand.

MUSIC 40S

The prerequisite is good standing in Grade Eleven music or the ability to demonstrate a comparable playing level on a band instrument. All Grade Twelve students continue their study of music in the Music 40S course **Concert Band Two.** This is a performance-focused course that will continue the development of each student's musical skills and understanding through the playing of their instrument. The course also includes the study of music theory and music history.

WORLD ISSUES 40S

This course is directed towards students who might be considering a career which will involve them in business, public service, media, communications, journalism, law or similar areas in which an understanding of government, the political process, international development and basic economics would be useful.

A number of the following topics will be considered in depth: human rights in the world, terrorism, basic economics and the process of globalization, corporate media, the United Nations and Geo-Political Organizations, the effect of industrialization and urbanization. There is an emphasis on dialogue within the course; much depends upon the students willingness to read about what is happening in the world. There will be one essay assignment per term, the preparation of which will give the student valuable experience in preparing university-style research papers.

PHYSICAL EDUCATION 41G

This course will enable the students to develop their leadership skills. Students will share responsibility in developing and co-ordinating intramural activities within St. Paul's. Topics to be covered include: the organizing and scheduling of tournaments; refereeing skills; CPR certification; and the development of coaching skills; foundations of physical education and sports, leadership theory, an examination of sports marketing sport management and sporting careers as well an introduction to the basics of biomechanics and kinesiology.

ART 40S

In Grade Twelve Art students will continue to develop their technical skills and creativity through class projects and sketchbook assignments. During the year students will focus in an area where they have developed an interest and expertise. For those students thinking about an art related career, they can also plan and prepare an art portfolio for further art education in University or else where. Art History and Theory will continue with the goal being a more sophisticated analysis of art in its social context.

PSYCHOLOGY 41G

Psychology offers students an opportunity to discover why they behave as they do. The course will be a systematic and scientific study of the behavior and mental processes of human beings and other animals. It will expose students to psychological facts, principles, and phenomena associated with each of the major subfields within psychology. Through the study of human behavior and human nature, students will better understand their relationships and themselves.

ECONOMICS 40S

Each day economic issues play a major role in the day-to-day lives of all individuals. At a personal level we have daily concerns such as, what to buy, how much to spend, and paying income tax, to name a few. Occasionally, we may also be faced with major economic decisions, such as starting a business or whether to declare bankruptcy. Economic decisions made by governments such as reducing national debt, slowing rising inflation, how much financial aid should be provided to developing countries, and maintaining the stability of the national economy also have profound effects on all citizens.

ECONOMICS 40S continued…
This course looks at current economic issues facing not only individuals but also important issues faced by both Canadian and international economies. In addition to acquiring knowledge of basic economic terms and processes at work in the Canadian economy, students will also develop an understanding of the strengths and weaknesses of the Canadian economy. Students will be exposed to the differences between the economic systems found in North America and centrally planned (communist) economies, as well as other economic systems found throughout the world.

Students in this course will also develop an understanding of the western world's influence over economies of the developing world in addition to conducting analysis and research that focuses on determining how this immense gap in wealth between western and developing countries has occurred.

ADVANCED MATHEMATICS (1 credit)

The Advanced Mathematics program in grade 12 includes 2 half-credit classes:

MATHEMATICS ADVANCED TOPICS 45S (.5 credit)

The pre-requisite for this course is Advanced Mathematics 31G. This course prepares students for a number of first year university courses in Mathematics and is one of our Advanced Mathematics courses at St. Paul's. Students cover topics such as mathematical induction, indirect proofs, complex numbers, vectors, linear algebra and matrices. This is a half-credit course.

MATHEMATICS CALCULUS 45S (.5 credit)

The pre-requisite for this course is Advanced Mathematics 31G. This course prepares students for the first year university calculus courses and is another one of our courses in the Advanced Mathematics Program at St. Paul's High School. It continues off where the Advanced Mathematics 31G ended in Grade Eleven. Students will cover derivatives and their applications, integrals and their applications as well as prepare for the Manitoba and Canadian Mathematics Competitions, both written in term 2. This is a half-credit course.

EXTRA CREDIT ELECTIVE COURSES:

MUSIC 45S (.5 credit)

Wind Ensemble is an option reserved to select students who wish to continue their study of music although due to other course elective future career needs are unable to accommodate the full credit Concert Band in their timetable. This course is reserved to students with high standing in Grade 10 or Grade 11 music. Entry into Wind Ensemble will be limited and at the discretion of the music teacher and the student's counselor. Students who wish to take Wind Ensemble must make their request in writing to the music teacher and their counselor.

MUSIC 45S (.5 credit)

Jr Jazz Ensemble is an introductory level half-credit course in jazz music that is open to students from Grade 9 to Grade 12. Admission to Jr. Jazz Ensemble is by audition only. Auditions take place during the first couple of weeks of classes. Audition music will be distributed to interested students during the first few concert band classes. Jr. Jazz Ensemble meets two mornings per week outside of the regular schedule.

Sr Jazz Ensemble is an advanced level half-credit course in jazz music. The course is performance focused. An audition is required and takes place in March prior the upcoming school year.
No previous jazz experience is required for Jr. Jazz Ensemble, yet is an asset. Good standing in Jr. Jazz Ensemble is a prerequisite for Sr. Jazz Ensemble. **It is expected that students who wish to take either jazz ensemble must be enrolled in the Concert Band program.**