

Enrichment Mini Course

Course Description 2019

Hosted at Memorial University of Newfoundland (MUN), College of the North Atlantic (CNA), Marine Institute (MI) and District Conference Centre (DCC).

MINI COURSE PROGRAM					
#	Course Title	Instructor	Date	Site	Description
	Planets, stars, and stuff in the sky	Dr. Michael Morrow and Rick Goulding	April 29 & 30, 2019	MUN	This course will talk about some of the things that astronomers can learn about planets, stars, and galaxies using equipment like telescopes and spectrosopes. Maximum 12 students
2.	Improving Brain Health Through Research	Dr. Katie Wadden	May 8 & 9, 2019	MUN at the Miller Centre	This course will provide students with an overview of how research is used to improve the lives of individuals living with neurological diseases. The first objective will be to introduce students to basic concepts surrounding functions of the brain. The second objective will be to familiarize students with neurological tools used in our laboratory to assess brain function. In a laboratory setting, students will watch demonstrations, and perform basic tests to assess brain function. The third objective will be to provide students with knowledge of current research projects performed in the Recovery and Performance Lab. We will discuss aerobic exercise as an intervention to improve the health of individuals living with stroke and MS. Students will watch an exercise test and discuss the importance of cardiovascular health on brain function. The fourth objective will be for students to create and develop their own research question to improve brain health. Maximum 15 students
3.	Introduction to Brain Science and Structure	Lisa Fang & Stephanie Blandford	May 6 & 7, 2019	MUN	This two-day course is intended to give students a look into brain structure and function. It will involve a combination of interactive lectures and hands-on

					<p>labs, including looking at plastinated brain specimens and recording your own brain activity using EEG. Please bring your own lunch, pens or pencils, and a binder or duotang folder. Students should also wear clothing that fully covers their legs, and closed shoes</p> <p>Maximum 28 Students</p>
4.	A Taste for Chemistry	Dr. Christopher Flinn	April 30 & May 1, 2019	MUN	<p>The first day students will make 3 or 4 highly colored chemical compounds and collect their crystals. The second day will be an introduction to some organic chemistry techniques including chromatography and distillation concluding with a special chemistry magic show! For safety lab coats and goggles will be provided however students need to have their legs and feet fully covered, we suggest jeans and sneakers.</p> <p>Maximum 15 students</p>
5.	PSI: Forensic Physics	Dr. G. Todd Andrews	<p>Dates Slots offered:</p> <p>May 14 & 15, 2019</p> <p>or</p> <p>May 16 & 17, 2019</p>	MUN	<p>An introduction to methods of forensic physics. Possible topics include (i) application of microscopy, materials physics, and optical techniques for examination of physical evidence, (ii) use of kinematics and dynamics in traffic accident investigation and ballistics, and (iii) audio analysis for speaker identification. Emphasis will be on hands-on activities, including case studies.</p> <p>Maximum 12 Students</p>
6.	The Fascinating World of Plants	Maria Esther Nieto Blazquez	TBA	MUN	<p>This course aims to get you interested about the fascinating world of plants!! Understand the many practical applications of plants (food, medicines, shelter, dyes...) and why they are so important for us. Did you know plants originated in the water and colonized land millions of years ago? Did you know plants breath and sweat like us? Did you know that potatoes are native to South America? Did you know that coconuts dispersed by water and are able to cross oceans? We will answer these questions and many more. We will identify different groups of plants found in Newfoundland (so you can show off next time you are in the woods with your family or friends!). Different modes of plant dispersal and plant adaptations to extreme/harsh</p>

					environments (e.g. deserts, freezing cold, chemicals) will be explored. We will finish the course by making a terrarium that you can take home. All plant and lab materials will be provided, just bring a mason jar for your own terrarium!! Maximum 15 Students
7.	Math Wizard (Vedic Math)	Dipen P. Modi	Dates Slots are Offered: April 30 & May 1, 2019 or May 7 & 8, 2019	MUN	The goal is to make the students aware of simple techniques with which difficult calculations can be done within seconds and even the weakest students can do it without a problem. Majority of competitive entrance aptitude exams like that of IIMs and IITs require the usage of Vedic maths as it is a race against time mostly. Vedic maths was developed in India and focusses on simple techniques that save a lot of time when doing complicated calculations. It is believed that the best time to learn anything new is Childhood. I strongly believe that it is the right time for students to learn Vedic maths. Maximum 15 Students
8.	Preparing Students for a Better Future through Collaborative Problem-Solving	Zareen Asim	May 15 & 16, 2019	MUN	When today's students step into the real life, it is unavoidable for them to face problems. Thus, they should be taught how to understand the problems, to find solutions, and move on with a fresh zeal and vigor. Problem-solving skills cannot always be taught directly; we learn them through experience and practice. It is an ongoing process in which we use what is known to find what is unknown. Problem-solving is and should be an integral part of the curriculum as it prepares students not only to think logically and critically to solve their mathematical problems, but also instills a number of soft skills (such as Active Listening, Speaking, Reading, Comprehension, Monitoring, Coordination, Time Management, Judgment and Decision Making, Writing, and Active Learning) if the problem-solving activities are done in carefully designed collaborative setting.

					<p>The workshop will include independent and group activities best suitable for 14-16 participants.</p> <p>Maximum 15 Students</p>
9.	Aquaculture - Sustainable Food Production	Cyr Couturier & Tracy Granter	May 2 & 3, 2019	Marine Institute	<p>Aquaculture is the fastest growing sustainable food production sector in the world. Students will be exposed to the exciting world of sustainable aquaculture through a mixture of practical seminars, labs and tours of the Fisheries and Marine Institute & the Ocean Sciences Centre in Logy Bay. Students will handle a variety of fish and shellfish species in our aquaculture facilities and become familiar with the various research, development and production activities taking place in the province, Canada and across the globe!</p> <p>Maximum 15 students</p>
10.	Earth's Story	Sharon Deemer	May 7 & 8, 2019, 2019.	MUN	<p>Geoscientists have unraveled many clues in the rock record to learn Earth's amazing story. From its beginning in the construction of the solar system Earth has experienced many dramatic changes. In this short course we will talk about some of the highlights of the events that have made Earth into a beautiful planet able to support abundant life. Earth hasn't always been the friendly home we enjoy today. During the course students will have an opportunity to look at significant rock samples such as the oldest rock on the planet, a meteorite sample under a microscope, and stromatolites and banded iron formation which tell us about the earliest life in microbial form. Some fossils and reproductions of significant fossils will also be brought out to show students the kind of material paleontologists use to understand the evolution of life.</p> <p>Maximum 15 students</p>
11.	The Stories of Gravity, and Funny Things without It!	Jianbo Long	May 15 & 16,2019	MUN	<p>Gravity is a basic force in the universe. What is gravity, and how it works in our daily life ? Why a feather and an iron ball can fall at the same speed ? Why our bodies' weights become much less if we stand on our Moon ? Why a satellite flying around our Earth does not need power to do so ? Through hands-on experiments (indoor), discussion, film watching,etc, students will learn the science behind a</p>

					series of real-life phenomena that are linked to the gravity. A mind with curiosity is all the student needs. Students will also be encouraged to explore and explain other 'mysterious' things caused by the gravity force, and those amazing things when the gravity disappears ! Maximum 15 Students
12	Life Cycle Assessment in Engineering Processes	Sadegh Papari	May 22 & 23, 2019	MUN	LCA is the methodology of tracking the flows of energy, materials and waste streams requires in the manufacture, use and disposal of products. The instructor will explain and demonstrate this methodology and its applications in identifying opportunities for improving the environmental performance of product throughout their life cycle, from raw material extraction to waste disposal Maximum 15 Students
13	Coastal Sciences and Climate Impact	Sheridan Thompson	May 13 & 14, 2019	MUN	This two-day course integrates classroom discussion and experimentation followed by a field excursion down to Freshwater Bay to observe watershed and coastal dynamics. We will discuss the formation of coastlines through deep (geological) time by observing the relevance of fossils (paleontology), rock characteristics (lithology), as well as the environmental processes that contribute to the geomorphology of coasts such as tectonics, glaciation, frost action, wave energy, storms systems as well as human impact. Students will be given time to reflect on their observations through creative writing and/or art and to share their personal experiences with Nature, particularly that of Newfoundland coasts. (Appropriate Outdoor Clothing Mandatory) Maximum 15 students
14	Introduction to Natural Resource Management and Environmental Issues	Jacqueline Riener	May 15 & 16, 2019	MUN	The purpose and goal of this course are to increase awareness of our natural environment, its resources, and the related challenges and issues we are facing as a society. The course will start with a general introduction of how resources are generally linked to a specific environment, and then narrow the focus down on the island of Newfoundland. From

					<p>there, specific environmental challenges that the province is facing will be acknowledged, but also the importance and relevance of the participation of all age groups toward solving these issues, such as proper waste management, restoration of our water system and many more.</p> <p>Maximum 15 students</p>
15	<p>From the Upper Crust to the Inner Core: Physical, Chemical and Biological Processes of the Earth</p>	<p>Kirsten Costello</p>	<p>May 9 & 10, 2019</p>	<p>MUN</p>	<p>The Earth is home to us humans, and has been for about 2 million years. We know that the Earth protects us, provides us with food, water, and even allows us to breathe. But what else could you say about the planet we call home? Maybe that it was once populated with Dinosaurs or covered by glaciers during the ice age. There is no denying that these are important facts, however, there is so much more to Earth than this! For example, did you know that currently the Atlantic ocean is growing in size, and the pacific ocean is gradually closing? Or that until 2.5 billion years ago Earth's atmosphere contained no breathable oxygen and that life was limited to single-cell organisms? Are you aware that the invisible magnetic field surrounding our planet is powered by Earth's liquid outer core? Or how about the fact that part of the province of Newfoundland was once attached to the Northwest coast of Africa? The Earth has undergone endless physical, chemical, and biological processes since it was born 4.6 billion years ago and continues to do so everyday.</p> <p>The objective of this mini enrichment course is to teach students how the fields of physics, chemistry, and biology can be applied to the interdisciplinary field of earth sciences through a series of lectures and hands-on laboratory practices. As the Earth is our home, it is critical for students to take the opportunity to learn about its phenomenal processes that are occurring every minute right beneath our feet.</p>

					Maximum 15 students Grade 8 & 9 Students only
16	Renewable Energy for a Sustainable Future	Hanieh Bamdad	May 27 & 28, 2019	MUN	This course will define and provide examples of renewable energy. All forms of renewable energy will be explained. Students will discuss and explore through video and interaction the impact these energies have on human life and the environment. Maximum 16 students
17	Chemical and Biological Analysis	Evan Langille; Roshni Kollipara	Dates Slots are Offered May 2 & 3, 2019 or May 9 & 10, 2019	MUN	This course will introduce students to the basic principles and techniques used in chemical and biological analysis. Specifically, students will be able to analyze compounds found in everyday items and learn the associated techniques for both chemical and biological analysis. Techniques such as thin layer chromatography (TLC), High Performance Liquid Chromatography (HPLC), colorimetric assays and Gel Electrophoresis will be explored through hands on experimentation. Students will learn about how scientists develop methods to analyze the world around us. We will discover the amount of caffeine in our favorite beverages, learn about amino acids, understand what makes up our common foods and separate plant pigments using high voltage! Grade 8 & 9 Students only Maximum 26 Students
18	Animal and Human Psychology	Christina Thorpe, Jill Cleary and Shannon Waye	May 14 & 15, 2019	MUN	Psychology is the scientific study of behaviour and mental processes. Students will learn about cognitive psychology, behavioural neuroscience, and animal behaviour. For example, students may do demonstrations to better understand how their memory works, learn how to identify brain areas and their functions, and observe animal behaviour in both the lab and the natural environment. Maximum 15 students
19	Psychology: How do we study behavior?	Dr. Pierre-Paul Bitton	April 29 & 30, 2019	MUN	This mini-course will explore what, why, and how we study animal (one day) and human (second day) behaviour. Students will be presented with some fundamental aspects of scientific enquiry (how to formulate a hypothesis, how to collect data), ethics associated with animal and human research, and a

					<p>quick survey of the diversity of research that is currently conducted (1/4 of the course). The majority of the course will involve students developing their own mini-experiments. The first day using behavioural observations of insects, the second day using observations of people</p> <p>Maximum 15 students</p>
20.	Wie geht's? Introduction to Germany and German speaking-lands.	Dr.Isabell Woelfel	<p>Dates Slots are Offered:</p> <p>April 29 & 30, 2019</p> <p>or</p> <p>May 2 & 3, 2019</p>	MUN	<p>The course will give an Overview on Germany and German speaking lands. Students will learn some basic German words and common German phrases. The course will also introduce students to German cities, politics and nature, and will focus particularly on German teen life and youth culture, such as popular music, films, books and the school system in Germany.</p> <p>Maximum 12 students</p>
21.	A Journey to Puerto Rico: An Introduction to Spanish	Olga Nedvyga	<p>Dates Slots are Offered:</p> <p>April 29 & 30, 2019</p> <p>or</p> <p>May 2 & 3, 2019</p>	MUN	<p>In this introductory course students will be introduced to the basics of Spanish in the context of everyday life. The framework for the course is an imaginary journey to the island of Puerto Rico where Spanish is spoken and the different situations students might face during their trip (meeting new people, shopping, tourism, weather, etc.). The emphasis is on the development of oral communication skills in Spanish and cultural awareness. No prior knowledge of Spanish is necessary.</p> <p>Maximum 12 Students</p>
22.	Two Days in Russia	Dr. Marina Grineva	<p>Dates Slots are Offered:</p> <p>April 30 & May 1, 2019</p> <p>or</p> <p>May 2 & 3, 2019</p>	MUN	<p>Discover another world in two days-learn to read Russian, acquire the basics about a “different” but very easy and logical foreign language, gain insights into a fascinating culture and intriguing but baffling history. This structured mini-course includes MUN students’ own videos, Russian movies, souvenirs, music, food, pen pal addresses, internet links. Consider the benefits of knowing Russian if you want to be a diplomat, journalist, scientist, or work in international business. Because of the changes since “perestroika”, Russia, the largest country in the world is more open to you than ever!</p> <p>Maximum 12 students</p>

23.	French Language: French as second language	Helene Patience Bilong	Dates Slots Offered: May 6 & 7, 2019 or May 14 & 15, 2019	MUN	It is a course that will enable students to start learning French language. They will learn and practice in class amongst them. It will be not only the basics but also the conjugation, grammar, speaking, listening etc... They will do many exercises to make them develop their language skills. This course will help them advance in the French language as a second language. Maximum 15 Students
24.	Japanese Language and Culture	Nami Ohara	Dates Slot are Offered: May 9 & 10, 2019; May 13 & 14, 2019 or May 27 & 28, 2019	MUN	This course is intended to give beginners a basic foundation in Japanese language comprehension and communication, as well as exposure to the culture of Japan through a variety of fun activities. Course Objectives: (1) Learn basic Japanese using culturally oriented activities and games. (2) Develop an ear for Japanese sounds and learn pronunciation basics. (3) Understand and use common Japanese expressions. (4) Learn to read both Japanese syllabic letters (Hiragana and Katakana) (5) Learn some basic Kanji (Chinese characters) Topics learned in this course are reinforced in the Japanese Calligraphy and Origami course. Maximum 16 students
25.	Japanese Calligraphy & Origami	Nami Ohara	Dates Slot are Offered: May 23 & 24, 2019 or May 30 & 31, 2019	MUN	This exciting hands on course is intended to facilitate an appreciation of Japanese culture through the practice of Japanese calligraphy (書道 - Shodo) and Origami(折り紙 - Origami). Course Objectives: (1) Japanese calligraphy Learn the ancient brush technique of Japanese artistic writing. Students will learn how to use the techniques and tools of this beautiful writing system to write personal names as well as some common Japanese words (e.g., 愛 love, 楓 Maple, 春 spring, 海 sea, 空 sky). Absolutely no previous drawing experience or skill required. (2) Origami

					Students learn the history of the Japanese paper folding art known as origami. Participants are instructed step by step to create unique and original origami figures Maximum 16 students
26	Much Ado about Shakespeare Acting Course	Dr. Carolyn Colbert	Dates Slots are Offered: May 1 & 2, 2019 or May 7 & 8, 2019	MUN	"All the world's a stage." Fight duels, perform magic, or plan revenge. Learn about the Shakespearean theatre, "the wooden O," and find out if Shakespeare wore tights! Become an actor or a director for two days. Perform scenes from your choice of Shakespeare's plays and produce appropriate costumes and sets. Maximum 24 students
27	Write On, Shakespeare	Carolyn Colbert	May 9 & 10, 2019	MUN	Sharpen your quills and learn some of the writing techniques used by Shakespeare. Write your own sonnets and mini-playscripts with a modern twist. Produce a sports story about the deadly sword fight in "Hamlet." Report on the murders in "Macbeth." Transform Romeo and Juliet into love-lorn high school students whose parents just don't understand them. Be creative---and don't worry about the "thee's" and "thou's." Maximum 14 students
28	What is Human Nature?	Dr. Peter Trnka	May 27 & 28, 2019	MUN	This course will introduce you to the methods and subjects of philosophy. What is a human being? What is a good life for a human being? What is freedom? What is happiness? We shall examine questions like this through readings, videos, and discussion. The aim of the course is to show you how to express and criticize your own and others beliefs about nature, society, and technology. Maximum 12 students
29	Exploring the Future-land	Vaishal Shah	April 30 & May 1, 2019	MUN	Students will be taught about various facets of future. They will be introduced to new technologies. They will be educated regarding which technologies will become extinct and which new technologies will enter. Further, they will be educated regarding how future technologies will revitalize home, medical sector, transportation, space technology, etc. Students will be taught regarding existing companies who are working on future technologies and what they are doing. Special emphasis on how

					education and student life will be in future. Also, there will be special emphasis on how ecosystems like water, air, forests, etc will be in future and our responsibility in present to preserve them. It will also involve games, presentations, and videos. Maximum 24 students
30.	Let's Go on a Quest!: Exploring the Middle Ages through Popular Culture	Sam Lehman	Dates slots are offered: May 7&8, May16 & 17, May 21&22, May 23&24, May 27&28, May 29&30, 2019	MUN	This course will put you in the middle of the Middle Ages, by taking you on a journey through time. We will explore what life was really like for kings, knights, and queens during the medieval period. Students will get the chance to engage with popular movies, books, and comics that depict medieval life and learn to identify what those works get wrong about life in the Middle Ages, and what they get right! Maximum 15 students
31.	The Holocaust	Dr. Edita Bosák	Dates Slots are Offered: April 29 & 30, 2019 or May 1 & 2, 2019 or May 8 & 9, 2019 or May 10 & 13, 2019	MUN	Why were the Jews, Gypsies and homosexuals singled out for "special treatment" (annihilation) in the German Reich during World War Two? This course is intended to give students an understanding of who the victims were, where they came from and why they were considered the enemy. The subject matter is treated with sensitivity and reverence through the media of lectures, discussions, films and demonstrations. Maximum 12 students
32.	The History and Tragedy of Roma (a.k.a. Gypsies)	Dr. Edita Bosák	May 15 & 16, 2019	MUN	Who are these people, where do they come from and why does society boycott them whenever possible? The aim of the two day course is to introduce students to the history and culture of the Roma, and to explore the prejudice and mistreatment that is so much a part of the Roma's tragic history. Films will be seen, music heard, conversations and pictures presented. Maximum 12 Students
33.	Living an Ancient Life	Tana Allen & Brad Levitt	May 7 & 8, 2019	MUN	This course provides an interactive, hands-on experience of life in ancient Greece and Rome. We will offer students the opportunity to try being an actual Greek or Roman person. Each

					<p>of the two days of the course provides a window into major aspects of ancient life, including topics such as food and dining (try some ancient recipes) , education, hygiene and health, entertainment, and sports. Our goal is both to bring to life the challenges that an ancient person might face and to think about ways that we are able to figure out the past.</p> <p>Maximum 20 Students</p>
34.	Museum Studies: Creating and Exhibiting History	Elsa Simms	April 29 & 30, 2019	MUN	<p>This course will offer two days of hands on and interactive historical learning. The first day will be spent at Memorial University creating digital exhibits on Newfoundland history and archeology The second day will be spent at the Rooms examining exhibits, meeting curators and going on behind the scenes tours.</p> <p>Maximum 14 Students</p>
35	Who? When? How? How to understand History?	Corinne Graffin	May 6 & 7, 2019	MUN	<p>This session proposes to be an introduction into the academic world of History. To do that students will have hands-on experience with different materials related to history (audiovisual, books, image, music,...) and will discuss their contents in class. The rest of the session will be focused on the Medieval and Early Modern period of the Western World and the group will discuss the common perceptions and misrepresentations of this period of time. Students will have a Special Collection Workshop at the QEII library, where they will have first-hand experience of medieval and modern manuscripts, some over 700 years old. This students will be shown the historical tools used to understand those documents. During the second session, they will have to discussion contemporary depictions of the Medieval and Early Modern world life through mass media. Followed by a discussion of what they have seen. All of these experiences will culminate in a final Historical Research Workshop from which they will have to produce, as historians, a presentation poster about topics discussed previously, such a the Black Death, religious wars, witches, castles and much, much more.</p> <p>Maximum 16 students</p>

36.	From Bertie the Brain to Fortnite: the condensed history of video games	Akseli Virratvuori	May 22 & 23, 2019	MUN	This course progresses through a condensed history of video games and gaming from the 1950's to the current day. The course examines the events, innovations and trends that have shaped the largest entertainment industry in the world. It also ties video games into the larger world of games, and encourages dialogue within the classroom. Maximum 16 students
37.	Mummers, Mayhem and Murder: A True Newfoundland Story	Joy Fraser	Dates Slots are Available: May 22 & 23, 2019 or May 27 & 28, 2019	MUN	Nowadays, mummers in Newfoundland are typically festive, fun-loving figures such as those you might encounter at the annual St. John's mummers' parade or as brightly coloured ornaments on your Christmas tree. But what was mummering like in Newfoundland in years gone by, and what sources of evidence can we use to find out more? Collect mummering memories, perform a mummers' play, investigate a crime scene where all the suspects were in disguise, and discover why mummering was illegal in Newfoundland for over a century. Maximum 16 students
38.	Scottish Step Dancing	Joy Fraser	May 29 & 30, 2019	MUN	Make music with your feet! This course is an introduction to Scottish step dance, a traditional percussive dance form that involves beating out rhythms with your feet. We'll learn some basic steps designed to be danced to two main types of tune: strathspeys and reels. We'll then practise combining the steps into routines in preparation for an end-of-course performance to showcase your new skills. You will need hard-soled shoes that don't stick when you scuff your feet on the floor (indoor shoes only, please). Wear cool, comfortable clothes and bring a bottle of water. Maximum 16 students
39.	Male and Female Basketball Camp	Coach Peter Benoite	Dates Slots are Offered: May 6 & 7, 2019 or May 14 & 15, 2019	MUN	Come develop your basketball skills. Develop the proper jump shot, layup and foul shot. Hone your defensive skills. Enjoy scrimmages at the MUN gym and the new Field House gym. Instructors to include members of the Sea Hawk Men's and Women's Basketball Teams. Maximum 75 students only

40.	Male and Female Volleyball Camp	John Slauenwhite	May 9 & 10, 2019	MUN	Come develop your volleyball skills. Develop the proper basics for digging, setting blocking and spiking. Hone your defensive skills. Enjoy scrimmage games at the MUN gym. Instructors to include members of the Sea Hawk Women's Volleyball Teams. Maximum 60 students.
41.	Building Captain America	Emily Colwell	May 28 & 29, 2019	MUN	How can Captain America run 13 miles in half an hour? Or stop a helicopter from taking off? Could he really, "do this all day"? If you have a passion for fitness and the human body, this is the course for you! You will learn about physiology and body physics by examining superheroes and heroic feats from a scientific perspective. You will be exposed to an engaging, hands-on environment in our Anatomy and Biomechanics laboratories. Maximum 15 students
42.	Physical activity and data science	Daniel Fuller, Bo Simango & Javad Rahimipour	Session Dates: May 9 & 10, 2019 Or May 23 & 24, 2019	MUN	The course will introduce students to the measurement of physical activity using a metabolic cart, and accelerometers and global positioning systems in smartphones and wearable devices. With the data students collect we will introduce basic concepts of data science including reading in data, data visualization, and basic math functions using the R statistical programming language. Grade 8 & 9 Students Only Maximum 14 Students
43.	Engineering Design	Mr. Raj Jani	April 29 & 30, 2019	CNA - Prince Philip Dr.	<u>Safety glasses are mandatory.</u> How are machines made??? Experience the engineering design process. First you will identify a need, define the problem and set your design objectives. Then you will brainstorm for solutions and choose your 'best' option. Next you will develop sketches for your design, generate a 3-D computer model, and get ready to plan your production! What materials will you need? What equipment? What skills? Finally you will fabricate your components using a variety of advanced technology systems; computer controlled machining centres, robotics and laser cutting systems. And there you have it, just what you needed!

					Maximum 12 students
44.	Expanding Dimensions- An Introduction to 3D Modeling & 3D Printing	Andrew Fisher	May 2 & 3, 2019	MUN	Students will learn about a variety of software tools that engineers use to create and manipulate 3D models as well as see their own design come to life through 3 D printing! 3D printing and computer aided drafting are changing how new ideas come to life. Come learn how you can become part of this change. Maximum 15 students
45.	Robot Design	Jordan Smith	TBA	MUN	Interested in mechanisms or electronics? Ever wonder how robots see and plan? This course will challenge students in the field of robotics as they create and program their own real robot from basic components. Students will develop practical skills in Engineering, Computer Science and Art which will help them continue on to start their own creative projects. Experience with Lego Mindstorms or similar is recommended but not required. Try code.org if you're new! Maximum 20 students
46.	Robot control using Microcontrollers	Howard Guy	May 22 & 23, 2019	CNA - Ridge Road Campus	Are you into robots and building electronic projects? The first part of the course will have you manufacturing and soldering a sound activated mini car. The second part will have you become familiar with microcontrollers to control a robot arm. Maximum 16 Grade 8 & 9 Students Only
47.	Computer programming from 0 to infinity	Theodore Norvell	Dates Slots are Offered May 6 & 7, 2019 or May 8 & 9, 2019	MUN	Computer programming is the art and science of turning ideas into plans. This course introduces the fundamental concepts of modern computer programming. By the end of the course, students will be able to create interactive computer programs, such as simple computer games, animations, and automated art generators. Maximum 24 students. Grade 8 & 9 Students Only
48.	Creating Virtual Worlds with Alice	Sharene Bungay	May 6 & 7, 2019	MUN	Alice is a simple 3D interactive animation environment. In this course the students will write simple stories, create animated virtual worlds, populate their virtual worlds with characters and objects they desire and

					<p>then see their stories come to life and played out. That is, the students will learn to become the scriptwriters and directors of their own stories.</p> <p>Script writing, creativity and visualization play a greater role in students' learning, and these elements are supported by Alice's environment. Thus, this course should be of great interest to students; girls or boys, who are creative and have no prior programming experience as well as to those girls and boys who are looking for a deeper understanding of the basic programming concepts.</p> <p>Grade 7 & 8 Students only Maximum 16 Students</p>
49.	Fun with Python (the Programming Language, not the Snake)	Lori Hogan	May 9 & 10, 2019	MUN	<p>Are you interested in learning how to program? Are you interested in learning how to make a computer play a song using light levels or manipulate a string of LEDs using the temperature? In this two-day course we will try to do this and more! By the end, students will learn basic programming concepts and be able to create simple programs in Python that control an Arduino microcontroller and the various input and output devices attached to it.</p> <p>Grade 8 & 9 only Maximum 15 Students</p>
50.	Print and Dye	Gina-Rae Hoyles	Slot dates Offered: May 14 & 15, 2019; May 16 & 17, 2019; May 21 & 22, 2019 or 23 & 24, 2019.	CNA Anna Templeton Building	<p>A fun filled two days is planned for the textile fanatics. This year we will offer a screen printing session, which will teach the students how to design, create and print a silkscreen. We will use this silkscreen to print onto a T shirt, which they can bring themselves. We will also spend some time learning about all over printing and colour families and will create a number of print and colour samples. We will then print our images onto a piece of fabric, that we will dye accordingly. Be advised, dyes and inks are permanent and students should dress in old clothes.</p> <p>Maximum 12 students</p>
51.	Sewing Basics	Gina-Rae Hoyles	Slot dates offered: April 29 & 30; May 1 & 2;	CNA Anna Templeton Building	<p>A fun packed two days is planned for our future sewists. This year we will offer a sewing session, in which the students will sew their own tote bag. We will be using a hand dyed piece of fabric to create our bag, which the</p>

			May 9 & 10, 2019		students will dye themselves on the first day, then learn all the basic of a sewing machine, including how to thread the machine, change stitch type, length and width, and how to complete their project with an overlock stitch. Be advised, dyes are permanent and students should wear old clothes for the first day. Maximum 12 students
52	Fundamentals of drawing	Laura Hutchings	Slot dates offered: May 23 & 24 or May 30 & 31, 2019	DCC	Exploring the principles of design to produce works of art with pen, pencil and coloured medium. Focusing on line, shading and creating different textures using basic drawing techniques to achieve a collection of artwork you're sure to be proud of. Maximum 14 Students