Helix Summer Science Institute
Call for Course Proposals

Science Engagement Programs

Science Engagement Programs offers innovative and engaging programs designed to inspire youth and discover exciting topics in science, technology, engineering, and mathematics (STEM). Based out of the Faculty of Science at York University, our programs use a discovery and inquiry-based learning approach that is focused on 'learning by doing'. Programming now includes York Science Saturdays, March Break Science Camp, Science Explorations Summer Day Camp, and the Helix Summer Science Institute. More information about Science Engagement Programs can be found at: scix.science.yorku.ca.

Helix Summer Science Institute

Helix is a high school enrichment program designed exclusively for high-performing students who have a strong interest in science and mathematics. Helix consists of a series of week-long, non-credit courses, for students in Grades 9-12 that run for the month of July. Considered one of Canada's premier high school summer science enrichment program, students will study advanced topics in science, engineering, and applied mathematics that draw upon the research strengths of the Faculty of Science at York University.

Students will be guided through cutting-edge interdisciplinary topics through a series of lectures, hands-on workshops, experiments, demonstrations, and field trips. Courses are developed and delivered by professors, post-doctoral fellows, visiting scholars, and graduate students. More information regarding Helix summer Science Institute can be found at helix.science.yorku.ca.

Application and Delivery Details

Taking place in July, Helix is a high school enrichment program for students with an interest in science and mathematics. The program will target gifted and/or high performing students, with the aim of attracting top students into the Faculty's undergraduate programs. This summer program will consist of a series of week-long non-credit courses for students in grades 9 to 12, designed to highlight specific research strengths within the Faculty of Science.

Past instructors have included graduate students and faculty from the Faculty of Science, however, students and faculty from other Faculties at York University are also encouraged to apply. Students in undergraduate programs with significant research experience may also apply to teach Helix. Past alumni, and individuals working in industry that have graduated from York University's Faculty of Science or Faculty of Engineering are also encouraged to apply.

Students and faculty who wish to participate and teach with the Helix Summer Science Institute will receive a stipend of $800 per course developed and $1000 per course taught at the end of program. This stipend does not affect graduate and research funding graduate students already receive. The stipend received is also subject to taxes and other applicable deductions unique to each individual.

Contact Details

Cora Reist

Program Coordinator | Science Engagement Programs | York University

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Submission Deadline: January 20, 2017

Meetings/Interviews will be held between January 5 and January 20, 2017.

Courses will be finalized by January 27, 2017.

Proposal Submission Details

Section 1: Application Form

Section 2: Course Proposal

Section 3: Instructor Biography

Section 4: Resume, and outline of relevant teaching experiences

Section 1: Application Form

Personal Information

Please select your title:

First Name: Last Name:

Email Address: Phone (Day):

Home Address: Country:

City: Province/State: Postal Code:

Educational Background

Institution and Faculty	Program and Department	Degree / Certification	Year Completed / Expected Completion

Please select the following that best applies to you:

Eligibility for Employment

Please select the following that best applies to you:

York University Employee ID: York University Student Number:

If you are a visa student, do you have a permit to work in Canada?   Yes   No

Availability for Employment

Please check all that apply:

    July 10-14, 2017   July 17-21, 2017   July 24-28, 2017   July 31 – Aug. 4, 2017

Please note that offers of employment are conditional upon instructors attending a mandatory training session workshop. Instructors will be required to submit a police vulnerable sector screen, WHMIS certification, and may have to show evidence of BioSafety training.

Section 2: Course Proposal

The Helix Summer Science Institutes aims to develop and offer courses from the various departments in the Faculty of Science at York University. In the past, courses have been challenging and exciting, and offer high school students a unique university level experience. Previous years have included projects that include PCR and Gel Electrophoresis, computer mathematical modelling of the transmission of disease, game programming, and practical computations in astrophysics.

This year, course proposals that involve field trips and out-of-classroom experiences will be given preference. Course proposals in the following fields of study are particularly requested: Animal Physiology, Astronomy, Biological Chemistry, Math & Technology, and Biological Physics.

Course Title:

Proposed Grade Level: Junior (Grade 9 & 10)   Senior (Grade 11 & 12)

Proposed Stream: _____ (If other, please specify)

Possible Stream Options:
1. Biomedical Sciences
2. Space Science
3. Neuroscience
4. Physics & Astronomy
5. Computational Mathematics
6. Environmental Biology & Chemistry
7. Engineering & Applied Sciences

Course Description

To be posted on Helix website to engage student interest.

	Monday	Tuesday	Wednesday	Thursday	Friday
Title/Theme *State the overall theme of the day (eg/ Introduction, Current trends, Future direction)*					
Lecture Topics *Clearly identify topics you wish to cover each day.*					
Proposed Activities/Experiments *State what students will be doing (eg. Gel Electrophoresis, computer modelling, feeding cells, problem sets). You may wish to state what undergraduate experiment or course your activity is found. Consider alternatives to experiments using human cells or tissue.*					
Learning Goal *Identify what you would like students to learn from the activity*					
Activity Details *Briefly describe the **protocols** and procedure of the experiment /activity.* *(If your course is selected, you will need to describe the protocol in greater detail separately.)*					

Facilities Required *Describe what would be the ideal facility (Computer Lab, Wet Lab, Standard Classroom). Be specific (eg. Farq 217)*					
Materials *Identify the materials you require for each activity with approximately 25 students. Estimate the cost associated for the course. Each course has an approximate budget of $400. In past years, instructors teaching Helix have purchased materials at a pro-rated cost from their supervisors.* *(If your course is selected, you will need to provide a detailed materials list separately.)*					

Section 3: Instructor Biography

Each instructor must submit a short bio which will be shared with parents and students to promote your course.

Sample Bio: Prof. Michael Chen graduated from Northwestern University with a PhD degree in Industrial Engineering and Management Science. Michael's research focuses on mathematical modeling of sophisticated business/industry/government management problems and fast computer algorithms for solution seeking. Michael's research is supported by the National Science and Engineering Council of Canada. Since joining York University in 2009, Michael has taught multiple courses in mathematical modelling and has been a popular teacher in this area. Michael's students are working for business intelligence or analysis department at IBM, Walmart, banks, insurance companies, etc.

Instructor Bio:

Section 4: Outline of Teaching Experience and Resume
Resume to be attached separately.