

DEPARTMENT OF CHEMISTRY



Dr Roy Porter, BSc, PhD, *UWI*
Head of Department

OVERVIEW

For the academic year 2017/18 the Department of Chemistry continued to build its brand in the higher education marketplace in outreach and development and in public service. The academic year saw students and staff participating in a number of workshops and conferences, which included the 26th Mona Symposium and the Better Process Control School.

At the end of the academic year the department was delighted to see 38 undergraduate students graduate with BSc in Chemistry three (3) of whom received first class honours; six (6) with M.Sc. in Occupational Environmental Safety and Health (OESH); one (1) Diploma; and six (6) M.Sc. in Food and Agro-Processing Technology (FAPT) higher degrees were awarded.

HIGHLIGHT OF MAJOR ACTIVITIES

Staff Movements

Dr. Norda Stephenson, lecturer in the department moved on to take up a Postdoctoral opportunity overseas. The department thanked her for her years of service both as a student and an academic staff and presented her with a gift to show its appreciation for her hard work and dedication to the department and by extension the university.

Professor Mohammed Bakir, Dr. Winklet Gallimore, and Dr Michael Coley proceeded on Sabbatical leave. Drs. April Johnson and Rose Marie Wilson were assigned their academic duties.

Miss Annette Smith who was temporarily assigned to the Main Library was permanently appointed; Ms. Gloria Webber was assigned to carry out the duties.

The Chemistry Department hosted its Christmas Luncheon on Friday January 15, 2017. The venue was C6 & 7. One of the highlight of the day's activities was the special tributes to Ms. Camelia Campbell, our former Senior Secretary and Mr. David Anderson, Groundsman for their invaluable contribution to the department.

Department Seminar

The coordination of the department seminars rested with Dr. Marvadeen Singh-Wilmot. Throughout the academic year she coordinated Twenty-One (21) engaging and informative seminars covering a wide range of topics, which were delivered by visitors, faculty and postgraduates; seminars delivered by visitors to the department are listed below:

- Ms. Sofia Johansson, University of Gothenburg, Sweden “Understanding Water Interactions With Organic Surfaces of Atmospheric Relevance – Insights in Environmental Molecular Beam Experiments”.
- Professor Raymond Jones, Loughborough University, UK “Isoxazoles: Masking and Morphing”.

- Dr. Erik Thomson, University of Gothenburg, Sweden. “Deliquescence and Ice Nucleation: Building a Deeper Understanding of Cloud Particles.”
- Ms. Allison Richards and Mr Earl Stewart Food Inspectors and Facilitators, Codex Secretariat “Food Safety: Compliance Activities and Codex”.
- Ms. Gail Nelson Science & Technology Development Planner Planning Institute of Jamaica (PIOJ), “Jamaica’s STEM Pipeline . . . A Question of Adequacy and Relevance”
- Dr. Machiel Saakes Wetsus, Leeuwarden, The Netherlands, “Redox Flow Batteries”.
- Sandra Latchman, PhD Candidate, UWI Mona and St. Augustine, “The Chemical Transformation of Stemodin to Produce Biologically Active Analogues”.
- Professory Hylton G. McWhinney A&M University Texas, USA. “Speciation of Cr(III)/Cr(VI) on Sediment and in Cr Contaminated Aqueous Systems: A Surface Characterization Approach”.
- Mr. Shalik Walker Process Engineer, JISCO ALPART Jamaica. “Carbon Capture via Molybdenum Disulphide Nanosheet Fillers”.

MONA SYMPOSIUM

The Chemistry Department hosted the 27th staging of The Mona Symposium on Natural Products and Medicinal Chemistry from 8th–11th, January 2018. There were approximately eighty (80) registered participants, nine (9) plenary speakers and twelve (12) short papers. Seventeen (17) of the presenters were from the United States, Canada, United Kingdom, Japan, Australia and the Caribbean. There were twenty-six (26) presentations at the poster session, twenty-three were by graduate students in the Chemistry Department, one from a graduate student in Department of Basic Medical Sciences, and the other two were from overseas participants.

The 27th Staging was dedicated to the lives of Professor Cedric Herbert

Hassall, FRS and Professor Wilfred Rupert Chang, CD, both of whom has made immeasurable contribution to the Chemistry Department and The University of the West Indies. A Thanksgiving service was held in their honor on Friday January 12, 2018 at the University Chapel.

Student Enrolment:

Table1: Number of students reading courses in chemistry 2014–2018

Level	2014–2105 Sem 1/Sem 2	2015–2016 Sem 1/Sem 2	2016–2017 Sem 1/Sem 2	2017–2018 Sem 1/Sem 2
Preliminary	197/173	233/197	225/182	220/177
Introductory	552/501	600/534	566/498	573/486
Advanced	239/198	218/188	256/233	246/224
Postgraduates	80/69	66/49	54/48	65/45

Book Loan Schemes

The Department continues with the operation of the book loan scheme for undergraduate students. The demand for the books at the introductory level continues to outnumber those for the preliminary and advance courses.

Chemistry Honours Society

On February 15, 2018, the Department hosted the Induction Ceremony for the Chemistry Honours Society (CHS). The Guest Speaker was Dr Cliff Riley. Thirteen (13) students who were first time awardees received the Bronze Award, one (1) received the Silver Award for being awarded for the second time, one (1) received the Gold for being awarded for the third time, and one (1) received the Platinum Award for being an

awardee five times consecutively. Special thanks to the team which ensured that the event was successful.

CAPE Workshop

During the period 15th–19th January, 2018, the Department held another successful series of workshops on Spectroscopy and Chromatography for the Caribbean Advanced Proficiency Examinations (CAPE) in Chemistry. Over 955 students and teachers from 40 high schools and community colleges across the island participated. Dr Salder-McKnight and Mrs. Samuels continue to organize these workshops and their efforts are truly appreciated.

Better Process Control School (BPCS)

The Department through the support of Dr. Donna Minott-Kates conducted the Better Process Control School (BPCS) January 15th–19th, 2018. The BPCS is a certification programme approved by the United States Food and Drug Administration (USFDA) and the Bureau of Standards Jamaica Limited. The course is offered to members of the food industry and regulators on processing of low-acid & acidified canned foods. Participating entities this year included Musson Jamaica Limited, Tijule Company Limited, Associated Manufactures, Norsai Enterprise Limited, Island Packers Limited, Bureau of Standards Jamaica Limited, M.F. Foods Limited, Dairy Industries, P.A. Benjamin Limited, Scientific Research Council and Lasco Distributors. Two of our graduate students, Raylee Dunkley and Chevanese Morgan, also participated in the program.

Visible Emissions Observer Training

On January 23, 2018 and July 24, 2018 the department facilitated the staging of the Biannual Visible Emissions Observer (VEO) Certification Training offered by the National Environment and Planning Agency (NEPA). The VEO Training was administered by representatives of Eastern Technical Associates (ETA), a company based in the United States of America. VEO Training School is accredited by the United States Environment Protection Agency (USEPA).

RESEARCH DAYS

The Department of Chemistry participated in Research Days 2018 with a booth display in the main exhibition tent under the theme “Adventures in the Periodic Table”, and displays on the main spine in the Faculty of Science and Technology. An ice cream making demonstration was conducted in the Food teaching lab. The focus was on three areas of research:

Flourine Chemistry	Dr. Nickiesha Stephenson
Lanthanides	Dr. Marvadeen Singh-Wilmot
Lead	Mr. Trevor Ramikie (OESH PhD. candidate)

There were also interactive Periodic Table and games using the elements of the periodic table.

The Principal's Research Day Awardees 2018 were as follows:

Principal's Awards for the Best Research Publication (Article):
Marvadeen Singh-Wilmot; Rochette Sinclair and Professor Ishenkumba Kahwa.

“Eu3+ substitutional defects and their effect on the luminescence spectral and decay dynamics of sal-type one dimensional rare earth coordination polymers and trinuclear complexes.”

Nickeisha A. Stephenson. Etal

“Synthesis and preliminary PET imaging of 11C and 18F isotopologues of the ROS1/ALK inhibitor lorlatinib.”

ACADEMIC VISITORS TO THE DEPARTMENT

During the academic year, the following persons visited the Department:

- Professory Hylton G. McWhinney, Retired Professor of Chemistry, Prairie View A&M University Texas, USA.
- Ms. Gail Nelson, Science & Technology Development Planner, Planning Institute of Jamaica (PIOJ).

- Dr. Machiel Saakes Wetsus, Leeuwarden, The Netherlands
- Dr. Erik Thomson, Lecturer in Atmospheric Science, Department of Chemistry and Molecular Biology, University of Gothenburg, Sweden.
- Ms. Allison Richards and Mr Earl Stewart, Food Inspectors and Facilitators, Codex Secretariat.
- Prof. Raymond Jones, Department of Chemistry, Loughborough University, UK. External Examiner, Organic Chemistry, UWI.
- Ms. Sofia Johansson, PhD Student, Atmospheric Science, Dept. of Chemistry and Molecular Biology, University of Gothenburg, Sweden.
- Dr Irvin Booysen, South Africa, University of KwaZuluNatal.

FUNDED PROJECT

Dr. Peter Nelson:

Development of metal selective polymeric dibenzo-crown systems for the selective absorption of metal ion, towards the development of cheap ion selective electrodes”.

STAFF/STUDENT EXCHANGE

Ms. Tahjna Robertson visited the University of Gothenburg, Sweden for semester II of the 2017–2018 academic year as part of the ongoing programme of staff/student exchange between the Departments of Chemistry, University of Gothenburg, Sweden and The University of the West Indies, Mona Campus. In return three (3) students from the University of Gothenburg visited for the 2017/18 academic year. In Semester I we had Josefin Maher and Feben Bereket and in semester II we had Christer Edvardsson.

OUTREACH

The Chemistry Department prides itself in doing its part to enrich the minds of students, and as such, opened its door to the Mona High

School students who were unable to complete their CSEC School Based Assessment (SBA) due to an explosion at the school's lab. The Chemistry Department invited the students to use their facilities on Thursday, March 15 and on Tuesday March 20, 2018 respectively so that their SBA's could be completed before the end of March deadline.

Special thanks to Dr Petrea Facey who organized the laboratories, the lab technicians of the Preliminary Lab, Introductory Lab and the Physical Chemistry Lab for their assistance, at very short notice, in accommodating the students and helping to prepare for the experiments. The students were able to complete three experiments over the two day period and were very appreciative of the opportunity to experience a university laboratory.

The Chemistry Department under its ChemFit banner again participated in the Sagcor Sigma 5K Run/Walk held February 18, 2018. Twenty-Six (26) participants comprising of staff and students participated, placing thirty third (33rd) out of one hundred and twenty-six (126) teams.

PAPERS PRESENTED

- **Goldson Barnaby**, A., Warren D, Duffus K, Downs F, Reid R, Gupte S. "Functional and nutritional properties of *Cissus sicyoides* berries". Canadian Institute of Food Science and Technology, Niagara on the Lake, May 27–29, 2018. Poster Presentation.
- **Sanjay Campbell**, Winklet Gallimore, Riyaz Basha, Alvin Holder, JeAnn Murray and Rupika Delgoda. "Unravelling the medicinal chemistry and pharmacological potential of the Jamaican brown alga, *Canistrocarpus cervicornis*". The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Oral Presentation.
- **Sanjay Campbell**, Winklet Gallimore, Riyaz Basha, Alvin Holder, JeAnn Murray and Rupika Delgoda. "5-Alkylpyrrole-2-Carboxaldehyde Derivatives from the Jamaican Ascidian *Botrylloides Perspicuum* and Their Cytotoxic Activities". The 27th Mona Symposium: Natural

Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Oral Presentation.

- **Oneiro K. Cherrington**, Denton K. Fearon, Garren R. Nelson and Paul B. Reese. “Ten-Membered Ring Macrolides and Other Natural Products from the Marine-Derived Fungus *Paraconiothyrium Cyclothyrioides*”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **J.J. Clarke**, and A. Goldson Barnaby, “Physicochemical properties of *Blighia sapida* (ackee) oil”. Abstracts of Papers, 255th ACS National Meeting & Exposition, New Orleans, LA, United States, March 18–22, 2018. Oral Presentation.
- **Kellyann Clarke**, Roy Porter and Trevor Yee. “The Essential Oil Composition and Antioxidant Assay Of Male and Female Pimenta RichardII” The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Kadane M. Coates**, Debbie-Ann Gordon-Smith, Michael J. Burn, John Smol and Suzanne E. Palmer. “Sedimentary Records of Anthropogenic Impacts and Climate Variability from a Tropical, Urban Estuary: A 150-Year Palaeoenvironmental Reconstruction of Kingston Harbour, Jamaica”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Marc Collins** and Paul B. Reese. “Biotransformation reactions using immobilized filamentous fungal cells” The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Oral Presentation.
- **Shaunté Cotterell** and Nadale Downer-Riley. “The Synthesis Towards Benzobisthiazoles”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018.

- **Sharna-kay Daley** and Nadale Downer-Riley. “A Concise Biomimetic Approach to Balsaminone A”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Doleasha Davis** and Winklet Gallimore “Isolation and investigation of the bioactivities of compounds and extracts from diverse species in Jamaican coastal waters”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Marcel Denny** and Nadale K. Downer-Riley. “Approaches For The Synthesis of 2-Substituted Naphthoquinone [2,3-*D*]Oxazoles”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- Mohammed Bakir, **Neenem Dilworth**, Mark Lawrence and Peter Nelson. “X-Ray Crystallographic and Spectroscopic Properties of Group 12 Metal Complexes of Di-2-Pyridyl Ketone Thiosemicarbazone”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- Goldson Barnaby, A. and **Duffus, K.** “Phenylalanine ammonia lyase activity and antioxidant properties of *Cissus sicyoides* berries”. From Abstracts of Papers, 255th ACS National Meeting & Exposition, New Orleans, LA, United States, March 18–22, 2018. Poster Presentation.
- **Winklet Gallimore.** “Who are the Real Influencers of Teaching and Learning on the Campus?” The Caribbean Tertiary Level Personnel Association (CTLPA) 21st Annual Regional Conference 2018 June 25th–28th, 2018.
- **Raylee Dunkley** and Ian Thompson. “An Evaluation of the Functional Properties of Acetylated Cassava (*Manihot Esculenta* Crantz) Starch for Hydrogel Preparation”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.

- **Shaquina K. Francis** and Michael D. Coley. “Use of Alumina Yield to Determine Bayer Liquor Characteristics and Alumina Equilibrium Solubility”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Sonal Gupte**, Ian Thompson, Andrea Goldson Barnaby and Helen N. Asemota. “Investigation of Jamaican Plant Extracts for Evaluation of Milk Clotting Enzyme to be used as Rennet Substitute in Cheese Making”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 8th, 2018. Oral Presentation.
- **Toshekia Malcolm** and Michael D. Coley. “Isolation of Asphaltenes: A Longstanding Unresolved Issue”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 8th, 2018.
- **Malcolm M.** & Goldson Barnaby, A. “A comparative study of the total phenolics, antioxidant activity, total lipid content, protein, carbohydrate, ash and mineral content of the seeds of *Albizia julibrissin*”. The 27th Mona Symposium, University of the West Indies. January 8–11, 2018. Poster Presentation.
- **Chevanese Morgan** and Ian Thompson. “Nutritional Value of the Jamaican Breadfruit (*Artocarpus Altilis*) Flour and Select Functional Properties of its Isolated Starch”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 11th, 2018.
- **Kadane Morris**, Paul Maragh, Tara Dasgupta and Kamaluddin Abdur-Rashid. “Catalytic Hydrogenation and Allylic Isomerization Using Cationic Rhodium and Ruthenium Complexes”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Ricaldo K. Pryce** and Paul B. Reese. “Initial Investigations into the Solvolysis of Stemodane Diterpenes”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.

- **Alexa O. Redway**, Ainka T. Brown, Yvette A. Jackson and Nadale K. Downer-Riley. “Investigation into the Thionation of Isoquinoline and Quinoline Carboxamides” The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 8th, 2018. Oral Presentation.
- **Coniel Roye**, Winklet Gallimore, Trisha Blair, Anishka Lewis, Paul Singh “Characterisation of the bioactive compounds found in the Jamaican soft coral *Pterogorgia Anceps*”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 11th, 2018. Oral Presentation.
- **Littlelet N. Scarlet**, Kamaluddin Abdur-Rashid, Paul T. Maragh and Tara Dasgupta. “Chiral Ruthenium Aminophosphine (*Pn*) and Phosphine Iminopyridine (*Pnn*) Complexes: Synthesis and Application to Asymmetric Hydrogenation and Transfer Hydrogenation”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Romario Smith**, Roy Porter and Duanne Biggs. “Isolation and Biotransformation of Cannabinoids from the Cannabis Sativa Plant Using Endophytic Fungi”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Norda Stephenson**, Novelette Sadler-McKnight “My voice actually counts...” Students’ experiences in the introductory chemistry laboratory, 254th American Chemical Society National Meeting in Washington, DC, August 20–24, 2017. Oral Presentation.
- **Miguel Thaxter**, Michael Coley and Johan Boman. “Assessment of The Ambient Air Quality in Jamaica using an Air Quality Index” The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Williams Garfield** and Paul B. Reese. “The effect of the C2 and C13 oxygen functionalities on the biotransformation of diterpenoid analogues using *Beauveria bassiana*”. The 27th Mona Symposium:

Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Oral Presentation.

- **Williams Garfield**, JeAnn E. Murray, Rupika Delgoda, Muraleedharan G. Nair and Paul B. Reese “Biological activities of stemodane diterpenoids”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.
- **Nijole Young**, Michael Coley, Vaughn Rattray and Anthony Greenaway. “Multivariate Analysis of Phosphorus Solubility from Processing of Jamaican Bauxites”. The 27th Mona Symposium: Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 9th, 2018. Poster Presentation.

PUBLICATIONS

- Downs, F, **Goldson Barnaby, A**, Reid, R. “Lipid profile and total phenolics of *Cissus verticillata* seed and leaf extracts”. *Seed Technology* 38, 2 (2017): 141-146.
- Kohali, M., Yazdi, M., **Goldson Barnaby, A.**, Tabandeh, MR. “In silico prediction, phylogenetic and bioinformatic analysis of SoPCS gene, survey of its protein characterization and gene expression in response to cadmium in *Saccharum officinarum*”. *Ecotoxicology and Environmental Safety*. 163, (2018):7–18.
- **Goldson Barnaby, A.**, Duffus, K., Gupte, S. “Free radical scavenging activity and cytotoxicity assay of *Cissus sicyoides* berries”. *Journal of Berry Research*, 8, 2, (2018):109-117.
- M. Riley, L. White, T. Jones, K. Cumberbatch, A. Norman-McPherson, **W. A. Gallimore**, “Learning is just a Click Away: A Case Study on the Introductory Use of Student Response Systems (Clickers) in Higher Education”. *Caribbean Journal of Education* 39, (2017):1–25.
- **Gallimore, W.A.** “The Ongoing Study of the Chemistry of the Marine Inhabitants of The Ramsar Site of Port Royal, Jamaica”. *Journal of Advances in Chemistry*, 15, 1 (2018):6142-6149.

- González-Arjona, D., López-Pérez, G., Gustavo González, M., Domínguez, M.M., **Mulder, W.H.** “Study of UV filters as an in silico (QSAR) graduate project”. *Journal of Laboratory Chemical Education* 5 (2017): 55–66.
- Luque, A.M., **Mulder, W.H.**, Calvente, J.J., Andreu, R. “Proton transfer impedance of electrodes modified with acid thiol monolayers” *Journal of Electroanalytical Chemistry* 819 (2018): 145–151.
- Lawrence, M.A.W., and **Mulder, W.H.** “SNS versus SNN pincer ligands: electrochemical studies and their palladium (II) complexes as electro-catalyst for proton reduction”, *Chemistry Select* 3, 28 (2018): 8378–8394.
- Collier, T.L.; Dahl, K.; **Stephenson, N.A.**; Holland, J.P.; Riley, A.; Liang, S.H. and Vasdev, N. “Recent applications of a single quadrupole mass spectrometer in PET radiochemistry” *Journal of Fluorine Chemistry* 210 (2018): 46–55.

INCOME GENERATING

Dr Winklet Gallimore received a contribution of \$1,500 USD from the Matsumae International Foundation (MIF), Japan, to support research.

Dr Novelette Sadler-McKnight received funding under the Erasmus Plus programme for the academic year 2017–18 for three (3) faculty and three (3) student under the exchange cooperation between the Department of Chemistry and Molecular Biology, the University of Gothenburg, Sweden and Department of Chemistry, the University of the West Indies, Mona, with funds totalling **SEK 339582** or approx. \$5,149,502.68. The grant facilitated the participation of one (1) undergraduate student, Tahjna Robertson, spending 6 months at the University of Gothenburg. The three 3 faculty members from the department of Chemistry who visited the University of Gothenburg are Drs. Michael Coley, Peter Nelson and Novelette Sadler-McKnight.

Consultation fees, summer school and other departmental income: \$5,554,527.78

PUBLIC SERVICE

Dr. Andrea Goldson-Barnby

- Produce Safety Alliance Workshop
- Training Session: February 6, 2018 (29 participants)

Dr. Novelette Saddler-McKnight

- Coordinated CAPE Chemistry Spectroscopy workshop, January 15–19, 2018.

STUDENTS

At the Award Ceremony for the Faculty of Science and Technology held 22nd March 2018, the prizes and scholarship for undergraduate students in the chemistry department were awarded to:

Kemelia Lyons	The Garfield Sadler Award
Christopher Hossack	The Pavelich/Honkan Prize
Tahjna Robertson	The Cedric Hassall Scholarship
Wilbert Buchanan	The Leonard J. Haynes Award
Davauny Evans	The Kenneth Magnum prize for Applied Chemistry
Mishka Williams	The Wilfred Chan Award