FACULTY OF SCIENCE & TECHNOLOGY
Mona

Year ending July 31, 2016

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BSc (Hons), UWI, DPhil, *Sussex*, CChem, FRSC
DEAN

– *Dean's Overview* –

TEACHING, LEARNING AND STUDENT DEVELOPMENT

Student Enrolment and Access to Faculty Programmes

The number of undergraduate students enrolled in our Faculty has grown steadily over the period 2011–2016 as illustrated below. The increase in recent years is largely due to the diverse course offerings by each Department and the monitoring of new incoming students by Faculty Office staff.

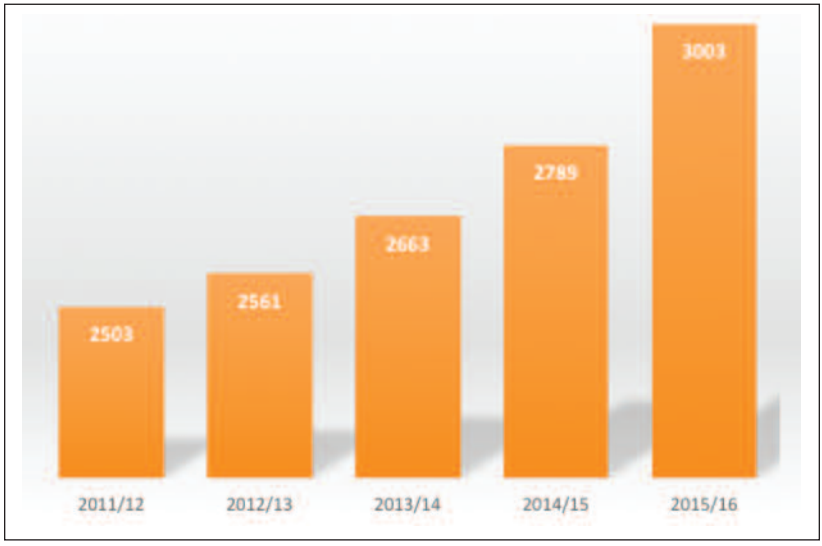

Figure 1: Number of registered students in the faculty

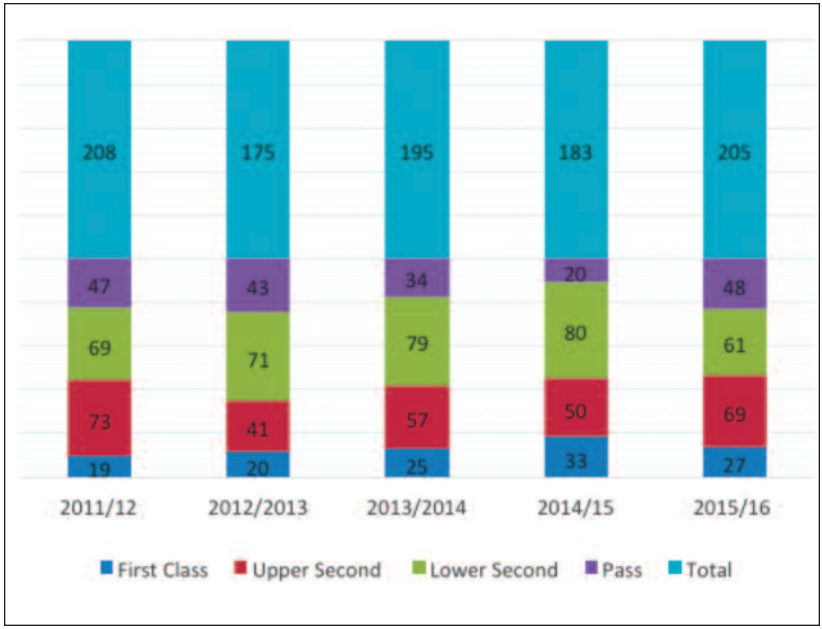

Figure 2: Number of Degrees awarded 2011–2016

Graduation data show an increasing number of students completing undergraduate programmes and earning their degrees over the period 2011–2016.

Each Department of our Faculty continues to be innovative and flexible in dealing with the large student numbers by adding extra class and laboratory streams, including weekend and evening classes, additional consultation hours by Lecturers and adding equipment to improve throughput in laboratory sessions.

OUTSTANDING ACHIEVEMENTS OF STUDENTS

Exploring the Chemistry of Caribbean Cuisine

Students from the Department of Chemistry emerged winners of a unique student competition, "Communicating Chemistry: Caribbean Cuisine" held at the 251st American Chemical Society National Meeting & Exposition in San Diego, California. The competition was organized

by the Agricultural and Food Chemistry Division of the ACS. The goal of the contest was to increase literacy in science-related topics among the general public, as well as to demonstrate how chemistry, in particular, relates to food and culture. The team members were Mario Christie (Captain), Shona Smith, Nadine Whyte and Rajeve Brooks. Their advisor was Dr Andrea Goldson-Barnaby.

Mona wins the recent Inter-American Development Bank's Sustainable Energy and Gender Competition

The competition was mounted by the BRIDGE Programme with a mandate to reduce the gap between the current workforce capacity and skill level and the future workforce required to meet the demands of developing sustainable energy systems. It was also designed to promote greater participation of women in the field of renewable energy. The result was the Women in Energy Competition. The Mona Campus submitted a concept proposal entitled, "Alternative Energy Awareness Program." This winning team was composed of students Dudley Williams, River Providence, Alton Daley and Jamila Walters. Dr. Tanya Kerr (Department of Physics) and Ms. Cherri-Ann Scarlett (Mona School of Engineering) were advisors. The jury selected this proposal because of its multi-facetted approach and the understanding that increasing female participation in Renewable Energy (and the Science Technology and Math field in general) demands a long-term effort. The team's focus on working with school science clubs and developing a link with university students to engage girls in this field is a promising strategy. In addition, the concept aims to follow a cohort of girls as they progress through their education. It also includes a scholarship programme for girls who want to enter the STEM field. Cave Hill's and St. Augustine's teams placed second and third respectively.

Biotechnology Students receive Awards at the Third Annual National Business Model Competition

Two of the award winning teams from the Biotechnology Centre are: Sweelevia's Nature's Tea, with Jordon Freeman and Samantha Williams

as team members; and Phyto-BioFoods, with participants Carlton Barrows and Kimberly Pringle. They copped second and third place awards respectively in the recently concluded Third Annual National Business Model Competition, with three out of its four student-entrepreneur teams securing a combined cash prize of J$1.75 million. Sweelevia's Nature's Tea and Phyto-BioFoods made their winning presentations to a panel of private sector judges in the final round of the national competition on Friday, April 1, 2016, finishing in the top four of thirteen teams across four universities – University of the West Indies (Mona), Northern Caribbean University, University of Technology Jamaica, and Edna Manley College of the Visual and Performing Arts.

IEEE International Robotics Competition

The venue of the IEEE SouthEastCon Hardware Competition was the Hampton Roads Shipping Barge, Virginia, USA. The course consisted of a scaled down shipping wharf comprising a shipping barge, a zone for transport via rail, for transport via boat, and a zone for transport via truck. Entrants had to design and build a completely autonomous robot that would collect "containers" of varying colours and QR codes and deliver them to the correct destination for transport within 5 minutes. Points were awarded when blocks were sorted correctly and in good time. A team composed of Electronics Engineers, Electronics and Computer Science students placed 3rd in the competition. They contended against 46 universities within the southeast USA. They also placed 6th in the software competition in which 23 universities participated. Team members were Yekini Wallen-Bryan (Captain), Paulo Williams, Richard Harris, Aisha Robinson, Khalid Sharpe, Sean McBean, Jason Brown, Locksley Murray, Kriston Kong and Dane Miller. Their advisor was Mr. Lindon Falconer.

Annual Faculty Awards Ceremony

The Annual Faculty Awards Ceremony was held on Thursday, March 24, 2016 in the Assembly Hall under the theme: "Honouring Outstanding Achievers". The accomplishments of a total of 274 awardees were

celebrated: 261 students and 13 staff members. The keynote address was delivered by Mr Jerome Miles, General Manager of Salada Foods Jamaica Ltd.

Creation of the FST Mobile App

In March 2016 the Faculty Office staff along with Dr. Gunjan Mansingh formed a committee to examine how the orientation process could be improved. It was decided to disseminate information in an innovative way by building a mobile app that would provide students with relevant and useful information at their fingertips. Matthew Stone, Romario Maxwell, Brandon Hinds, Kenroy Gobourne and Janelle Thomas, students from the Computing Society, were given this task. Three months later the first version of the UWI-FST app had been developed. The app (i) helps students find information on the faculty and university, (ii) features frequently asked questions, (iii) provides material on scholarships and bursaries, (iv) contains videos outlining the registration process, (v) informs on the location of lecture rooms, and (vi) has several other useful features. Some of the videos were generated by Jermaine Watson, an M.Sc. student in the Department of Computing. The faculty considers this mobile app as a useful addition to UWI's digital arsenal.

Graduate Studies

Student Registration: The total number of graduate students registered in the Faculty of Science and Technology for the academic year 2015–2016 was 384. 176 students were reading for research degrees: 117 MPhil and 59 PhD degrees, while 208 students were pursuing taught Masters.

RESEARCH OUTPUT

FST Graduate research output:

The number of research students and their participation in publications and conferences for the 2015–2016 academic year.

Department	No. of registered MPhil and PhD Candidates 2015/16	No. of Publications with Graduate Students 2015/2016	No. of Conference Presentations with Graduate Students 2015/2016
Mathematics	8	1	3
Chemistry	44	2	8
Life Sciences	46	3	12
Physics	25	7	2
Computing	17	8	7
Geography and Geology	7	9	13
Biotechnology	18	10	5

EMPLOYEE ENGAGEMENT AND DEVELOPMENT

FST staff who received the Vice-Chancellor's Award for Excellence in 2015

Professor Byron Wilson, Professor of Herpetology & Conservation Ecology, Department of Life Sciences, received the Vice-Chancellor's Award for All-round Excellence in two or more core areas (Research Accomplishments and Public Service). He has a proven record for documenting and conserving Jamaica's unique biodiversity. Over the last five years, Professor Wilson has displayed outstanding productivity in all categories of research output: authorship of books and journals, special issues, editor/series editor and conference presentations. Since 2009, he has earned over US$900,000 in local and international funding (a total of about US$1.5 M since joining the Department of Life Sciences in 2001).

Professor Michael Taylor, Deputy Dean of the FST and Head, Department of Physics, received the award for Outstanding Research Accomplishments. His general areas of academic specialisation are Environmental Physics and Climatology. He is well known for undertaking the study of Caribbean Climate Variability and Climate Change at a time when research in the area was largely led by persons outside the

region. Among his wide repertoire of publishing accomplishments, is a book authored earlier this year entitled "Why Climate Demands Change". His UWI grantsmanship record totals several million US dollars. In May 2015 he played the lead role in securing a US$10.4M grant for the Mona Campus.

NATIONAL HONOURS & AWARDS

At the 2015 National Honours and Awards held on Heroes' Day, Dr. Anthony Greenaway received The Order of Distinction in the Rank of Officer (OD) for outstanding contribution to Academia and, in particular, research.

Professor Elizabeth Thomas-Hope also received the Order of Distinction in the Rank of Commander (CD) for contribution to Caribbean Migration and Environmental Management.

Distinguished Young Woman Scientist

Dr. Nagarani Ponakala, Senior Lecturer in the Department of Mathematics, was selected as one of the 2015 Distinguished Young Women Scientists by the Inter-American Network of Academies of Sciences (IANAS). Dr. Ponakala, who specializes in Applied Mathematics, is a member of the Mathematical Modelling (Physiological Fluid Dynamics) Research Group in the Department of Mathematics, and also the Coordinator for the B.Sc in Mathematics and Modelling Processes. She was chosen for the honour following an interview process which saw IANAS considering many women from different countries in the Americas.

NATIONAL ENGAGEMENT AND OUTREACH

The Faculty's Outreach Team visited a number of high schools across the island, including schools in Kingston and St. James.

The FST participated in the January 2016 outreach to the Mona-Western Jamaica Campus (WJC). Departments within the FST provided students with information regarding programmes on offer. There were also

interactive displays by the Biotechnology Centre, the Departments of Chemistry, Computing, Physics, Mathematics, Life Sciences through the Discovery Bay Marine Laboratory personnel, and the Mona School of Engineering.

The Departments of Physics, Mathematics and Chemistry, and the Mona School of Engineering hosted CAPE workshops aimed at assisting high school students in grasping important science concepts. The opportunity was also used to sensitize the students about university life and the competitiveness of getting into Science programmes at the UWI.

In June 2016 the Faculty participated in the annual "Relay for Life" for the fourth time. The annual event supports the work of the Jamaica Cancer Society and its efforts to raise funds to eliminate cancer as a major health problem in Jamaica. The focus of the FST team was on Prostate Cancer. The FST booth highlighted the work of departments involved in cancer research. The Faculty's participation came as the result of a collaborative effort from personnel from all departments, who raised funds, manned the booth, and took part in the relay. The FST received two awards: "Best Tent" and "Bronze winner for most Team Donation".

REGIONAL AND INTERNATIONAL COLLABORATION

Memorandum Of Understanding

During the Calendar year 2015/2016, the Faculty of Science of Technology indicated intent to partner with the Southern University, Baton Rouge, LA, USA. This MOU sets out the terms by which the SUBR and The UWI will develop collaborative initiatives to provide opportunities for students and faculty from both institutions to engage in training opportunities, development and implementation of academic programmes and for collaborative research activities.

NOTABLE PROJECTS ACROSS THE FACULTY

Mona Symposium: Natural Products & Medicinal Chemistry

The Department of Chemistry hosted the 26th Mona Symposium:

Natural Products and Medicinal Chemistry over the period January 4–7, 2016. This meeting represented the 50th year of the biennial conference first held in 1966. The conference was centered around eleven plenary lectures delivered by chemists who are acknowledged internationally as experts in their chosen area of research. There were also twelve short papers and a number of posters on topics that highlighted the latest developments in the subdiscipline of Organic Chemistry. This series of Symposia has enabled the Chemistry Department at Mona to maintain a level of recognition internationally. The Department hosted overseas participants from the USA, Canada, Australia, Japan, South Africa and the Caribbean, along with local and regional registrants including staff, postgraduate students and various representatives of the local scientific community.

The NPI Launched Handbook on "Potential Drug Interactions for Commonly Used Medicinal Plants & Foods in Jamaica"

The launch was held on Monday September 28, 2015, at the Council Room, UWI, Mona. The handbook is a practical guide to avoid adverse drug reactions and is anticipated for use by physicians, pharmacists, other health care professionals, and patients alike, and has approximately 70 potential interactions by 30 herbs and foods commonly used in Jamaica. It summarizes a decade of research conducted at the Natural Products Institute (NPI). The information from the handbook has been applied to form an app that can be used easily by the medical community for quick reference. Additionally, a webpage will be created to update new findings emanating from the NPI. The authors hope the handbook will help increase awareness of this public health issue and mitigate potential adverse drug reactions in the country.

ADDRESSING THE FUNDING CONSTRAINT

Departments continue to generate income mainly via self-financing programmes. Fund raising activities across the Faculty continued as shown by grants acquired amounting to over J$18,414,876.

Resource Mobilization Unit (RMU)

The RMU successfully obtained funding regionally from the FAO and the Government of the Republic of Colombia to support a study tour. This represents a new approach for Science funding, and similar approaches will be used in the future.

Greater focus was placed on engaging the private sector to support the events of the Faculty. Several private sector entities came on board to support activities in the Mona Symposium as well as Research Days 2016. A new initiative, known as the Science Experience Park, was launched by the Faculty. This sought to bridge the link between the creators and users of science. It was a successful pilot.

The RMU has been supporting departments within the Faculty to create connections with the Government of Jamaica in order to leverage its personnel, technology and resources to support the national agenda in the areas of Health and Agriculture. There was constant feedback from stakeholders for a programmed approach to provide a clear picture of the Faculty's financial needs and a better understanding of the projects and activities for which funding was being sought. This led to the development of a new comprehensive funding strategy in which the priority areas have been identified.