FACULTY OF PURE AND APPLIED SCIENCES
MONA

Year ending July 31, 2006

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Overview

HIGHLIGHTS

Curriculum & Quality Building – Strengthening regionality

The **Departments of Physics, Chemistry and Life Sciences** held **cross-campus harmonization and curriculum reform meetings** and, based upon this have initiated curriculum reform, aimed at facilitating movement between campuses and promoting active learning. A brief, pointed report from the **Quality Assurance Review** of the **Mathematics Section** emphasized the Section's need for new, effective leadership and additional faculty, to modernize its curriculum, improve communication and collaboration within and outside the department and, in general, to lift of its performance in teaching and research. The Section is responding to the challenge. **Computer Science** has updated its courses, de-emphasizing recall and focusing more on problem solving. As a software project the Section developed a streaming programme to serve the Faculty, and has helped tremendously with the streaming of laboratory and lecture groups, which still, because of late admissions, takes place far too late.

Outreach – Raising the profile of Science

The Faculty, partly in collaboration with CARIMAC, produced three short films entitled "*Seeing Red: The Science of Violence*", "*Paradise Lost*" and "*Sick to Death: The Science of HIV-AIDS*". This UWI/UNESCO Science/ Media Project was based on a proposal by Dr. Mark Thomas (Life Sciences) and Dean Young, aimed at fostering a more scientific approach to popular issues.

Different Departments ran workshops and offered special experiences for teachers, and for high school, primary school and even kindergarten children. The Faculty hosted 10 students and two teachers from the **Denham Town Primary School Science Club**. This inner city school has consistently excelled in schools' science competitions, and was recognized because of their success in promoting an interest in science among the young. They visited all the departments of the Faculty and dined at Pages Café. Follow-up visits are planned.

The Faculty continued to host **Generating Genius**, a programme of a London based organization run by Dr. Anthony Sewell. This programme aimed at raising the aspirations of black males to careers in Science and Medicine, now places more emphasis on Science. In addition to Chemistry, Life Sciences and Biotechnology, the students this year, all

Jamaican, had added exposure to Robotics in the Physics Department. **The Biotechnology Centre** continued its involvement in the **Citrus Replanting Project** with the **Ministry of Agriculture**.

Research Symposia & Workshops: Scholarly activities

The **Chemistry Department** hosted the **21st Biennial Mona Symposium on Natural Products**, and, with the support of the Strategic Transformation Team, held a workshop on the **Strategic Evolution of the Chemistry Department (1948 to 2006),** aimed at identifying the factors contributing to the outstanding success of this Department over the years. The **Unit for Disaster Studies** (**Geography & Geology)** launched the **Virtual Disaster Library** in collaboration with the UWI Library, and the Department hosted the **5th British-Caribbean Geography Seminar** on *Global Change and Caribbean Vulnerability: Environment, Economy and Society at Risk*, in collaboration with the Royal Geographic Society and Institute of British Geographers. The Faculty was well represented at the **4th Biennial Conference of the International Society for the Development of Natural Products** held this year in Leysin, Switzerland. **Dr. Trevor Yee** (**Natural Products Institute)** was returned as Treasurer of the Society and **Dr. Rupika Delgoda** again won the prize for Best Poster. The **Centre for Marine Sciences** put on a Workshop on **Fish Energetics.**

Honours & Awards

Dr Michael Taylor (Physics Department) received the Scientific Research Council's **Young Scientist Award (2005)**, and **Professor Emeritus Edward Robinson** (Geography & Geology) received the **Gleaner's Honour Award for Science & Technology (2005)** and the **National Medal for Science & Technology (2005)**. **Nadale Downer-Riley**, PhD student in Chemistry, represented the region at the 56th meeting of Nobel Laureates (18th Assembly in Chemistry) in Lindau, Germany. The 2006 Principal's Award's went to **Professor Ralph Robinson & the Parasite Research Group** and to **Dr. Byron Wilson** of the Department of Life Sciences; to **Dr. Roy Porter** & **Ms. Petrea Facey** and to **Dr. Anthony Greenaway** of the Chemistry Department; to **Dr. Simon F. Mitchell** of the Department of Geography & Geology; and to **Drs. Mitko Voutchkov, Gerald Lalor & S. Macko** of ICENS.

STAFF

Nine full-time faculty (10%) resigned or retired (18 were lost last year).

PUBLICATIONS

Refereed publications fell by 5 (6%) with the annual per capita research output rising from 1.00 to 1.05. Total non-refereed publications, including conference presentations and technical reports (137), was down from 189 (2004/05) and 177 in 2003/04. Geography & Geology lead the teaching Departments with 1.5 refereed papers per full time staff member vs 1.3 for the Department of Chemistry. The Centre for Marine Sciences with 5 papers per staff member reached expectations for a research centre, but the Biotechnology Centre continued to under-produce. Geography/ Geology dominated, as usual, in conference presentations / non-refereed articles / reports / monographs etc. (c. 5 per full time staff member).

	Academic Staff	Refereed Publications	Non-Refereed	Technical Reports	Conference Presentations
N:	78	82	11	21	105

UNDERGRADUATE PROGRAMME

Registration

At mid-October, 2005, the Faculty had **1682 students** with financial approval, an increase of 175 (12%) over the number of **1507** in October 2004 (Student Records System). Total number with financial approval at the close of the year (mid-August) was **2073** (increased by 3% over 2004/2005). Registrations in Level 1 courses ranged from 62 in Geology to 324 in Life Sciences, averaging 199 *vs* 195 last year (2% increase), but numbers rose significantly in Life Sciences (23%) and Chemistry (10%), and declined in all other programmes, notably in Biochemistry (–25%) and Geology (–20%). The fall in this second year of offering Level 1 Biochemistry, was probably due to recognition that it could not be used along with Chemistry for admission into Medical Sciences; that in Geology can be ascribed to the start-up of a similar programme at St. Augustine. Reasons for the rise in Chemistry and Life Sciences (apart from the exodus from Biochemistry) are unclear.

	2003/04	2004/05	2005/06
***Total Registered:**	1801	2002	2073

*With financial approval at mid-August

BSc Degree Results

Numbers graduating in 2005/2006 increased by 7.5% to 274, after having increased by 20% in 2004/05. The percentage of First Class Honours fell (again) to 8%, but the percentage of pass degrees also fell.

	2003/2004		2004/2005		2005/2006	
Level of Degree	**N**	**%**	**N**	**%**	**N**	**%**
First	26	12.2	26	10.2	21	7.7
Upper Second	81	38.1	99	38.8	91	33.2
Lower Second	71	33.3	84	32.9	133	48.5
Pass	35	16.4	46	18.1	29	10.6
Total Graduating:	**213**	**100.0**	**255**	**100.0**	**274**	**100.0**

GRADUATE STUDIES

In 2005/2006, MSc registrations fell by 20%, and PhDs by 4%, but MPhils increased, with overall graduate registration falling by 27%, mainly in research students (67%).

Graduate Students

	REGISTERED			GRADUATING		
	2003/04	**2004/05**	**2005/06**	**2003/04**	**2004/05**	**2005/06**
MIS*	73	(73)	76	42	(42)	45
MSc	142	165	130	32	48	35
MPhil	188	167	175	15	20	8
PhD	62	71	68	5	16	4
Diploma	-	11	7	-	-	-
Total:	**465**	**487**	**456**	**94**	**126**	**92**

*MIS students are jointly taught by MSB and Computer Science staff and on alternate years are assigned to either FPAS or FSS (in 2005/06 they were assigned to FSS).

Graduate Courses

All groups, except the Computer Science Section and the Department of Life Sciences, discontinued some of their taught graduate programmes this

year. Consequently, the number of taught graduate courses fell from 60 to 47.

Department		Courses	Total Credits	Mean No. /Course	Courses/ Staff Member	
Chemistry	4	13	13.5	0.2†	**1.7***	
Geography &		3	26	3.7	0.5	**3.4**
Geology		0	0	n/a	n/a	**2.4**
Life Sciences		13	52	8.5	0.8	**2.8**
Mathematics &		3	18	1.0	0.5	**3.8**
Computer Science		16	68	24.3	3.2	**7.6**
Physics		8	45	11.1	0.8	**2.6**
TOTAL:		**47**	**222**	**14.0**	**0.7**	**2.9**

†This column indicates mean number of courses for graduate level only
*This column indicates mean number of courses including both graduate and undergraduate levels

GRANTS / INCOME

External Grants to the Faculty fell precipitously, across the board, by more than half although the total number of grants changed minimally (30 vs 33 in 2004/2005). Internal Grants, however, doubled in number and increased in value by 148%, whilst net Income Generated increased by 18%.

INTERNAL	EXTERNAL	INCOME
$8,600,252 **(n = 14)**	$51,214,349 **(n = 30)**	$28,665,748 **(n = 19)**

Currency is stated in J$ equivalents converted at a rate of J$62 to US$1

Most departments generated modest surpluses based upon income earned. The commercial arms of the Faculty, the NPI and MIAS both are still in the growth phase, and whilst generating patents (NPI) and significant increases in income (MIAS), are still not returning significant surpluses. Both, however, have very promising projects under development, which should be quite lucrative if brought to successful conclusions.

CONCLUSIONS

The Faculty has moved positively toward improving outreach to the schools at all levels and toward curriculum reform. Income diversification has been embraced through offering services (e.g. Commercial Chemistry), consultancies, surplus-generating courses and programmes,

and seeking grants. The Preliminary programme which the Campus wished to discontinue, but which the Faculty fought to retain, is proving to be very cost effective and useful in other ways, although the Faculty does not appear to be benefiting financially from this. The grant-seeking/income-generating performance has been effective, but erratic and income has not grown as steadily as might have been hoped. Research output also has not thrived and the loss of faculty along with failure to recruit internationally competitive replacements is a cause for concern.