# FACULTY OF PURE AND APPLIED SCIENCES MONA

## Year ending July, 2006

Professor Ronald E. Young, BSc, MSc UWI, PhD St. And. – Dean

# Dean's Overview

## HIGHLIGHTS

### Introduction

The Faculty, in 2006-2007 in addition to its ongoing activity in curriculum reform and income diversification, focused on some of the long-standing issues which have been of serious concern: student centeredness of the Faculty; the reading/writing/communication skills of our students; the level of preparedness of incoming students for mathematics at the university level; and the chronic problem of the lateness of offers of admissions to new students, giving little time for preparing either financially, academically or psychologically for entry into university. There has been good progress in harmonising the common curricular offerings across Campuses, on the basis that students should be able to move between Campuses without encountering problems regarding their basic qualifications. The Faculty office structure and reception process were reorganized to provide a more welcoming atmosphere for students and the Faculty has obtained financing and approval of the design for a student centre which should go to tender soon. We established a collaborative experiment with the Department of Language & Linguistics on Writing Across the Curriculum which is to begin in the year 2007/2008. We designed, under the leadership of a new lecturer in Mathematics, Dr. Conall Kelly, and with support from the Principal, a bridging programme in Mathematics for new students coming into the Faculty for the year 2007/2008. And we requested and received permission from OBUS to run a programme of early admissions based upon performance in Unit 1 CAPE subjects, obviating the need to await the results for CAPE Unit 2 before making firm offers for entry into the Faculty. (Permission for this was extended also to the faculty of Social Sciences). This first step, then allowed us to initiate early contact with students who were being made offers and to bring them on to the Campus for orientation during the

summer period, and enabled students to start seeking student loans and other forms of financial support at an earlier date. To facilitate the latter, we contacted the governments of all contributing countries and the Student Loan Bureau in Jamaica asking for their cooperation and received very positive responses. The full consequences of these initiatives are still to be analysed but we trust that the experiments will continue and that our efforts will improve in efficiency and effectiveness over the coming years.

**Scholarly Activities**

The Chemistry Department hosted four public lectures by visiting Professors associated with the newly inaugurated Occupational & Environmental Health & Safety (OESH) programme, while the Better Process Control School certified some 28 participants in the area of Food Chemistry. The Centre for Marine Sciences co-sponsored the biennial conference of the Jamaica Institute of Environmental Professionals. The Physics Department hosted an International Workshop on Climate Scenarios & User Interaction in December with 35 scientists from 9 countries attending, and in collaboration with the Electronics Unit ran a CAPE Workshop on Operational Amplifiers for some 213 students and 8 teachers from 19 high schools. The Electronics Unit ran a series of Industrial Electronics workshops and courses for industry and laboratory technicians and for undergraduate students. The Unit also developed a prototype laboratory apparatus (LabProMax) for conducting all electronics experiments required for the High School curriculum, and is seeking to market this to all CARICOM schools. A new Faculty Exchange Programme between Gothenburg University, Sweden, and the University of the West Indies, Mona (Chemistry Department) facilitated the visit to Mona of two faculty members from Gothenburg University between February and May and of two members of faculty from Chemistry and Educational Studies to Gothenburg between May and June.

**Honours & Awards**

Dr. Anthony Greenaway and graduate student Debbie-Ann Gordon-Smith received the Principal's Award for the Best Research Publication in the Faculty for their article "The Effects of Rainfall on the Distribution of Inorganic Nitrogen and Phosphorus in Discovery Bay, Jamaica." Professor Anthony Chen, Dr. A.M.D. Amarakoon and Dr. Michael Taylor received the award for the Most Outstanding Research

Activity for their project "The Threat of Dengue Fever - Assessment of Impact and Adaptation to Climate Change in Human Health in the Caribbean". Professor Ishenkumba Kahwa received the award for The Research Project with the Greatest Business/Economic/Development Impact for the project "Asbestos Removal from Succaba Pen, Old Harbour". Mr. Jayaka Campbell, graduate student in Physics was deemed to have presented the Outstanding Student Paper at the American Geophysical Union 2007 Joint Assembly Conference in Mexico. Dr. Perceval Bahado-Singh of the Biotechnology Centre won first prize for his poster presentation on Low Glycaemic Index Foods at the UDOP Diabetes Conference held March.

## STAFF

The Department of Geography & Geology took on two new Lecturers in Geography and one in Geology, and the Department of Chemistry took on one new Lecturer in Food Chemistry while losing one Lecturer in Applied Chemistry whose contract came to an end. Professor Jonathan Farley joined the Mathematics Section, Department of Mathematics & Computer Science, but resigned by the end of the year. Dr. Ashley Hamilton-Taylor, having completed his PhD at Georgia Tech rejoined the staff in Computer Science and Dr. Timothy Stitt resigned. Dr. Paul Aiken joined the Faculty as Director of the Electronics Unit and has brought a new sense of vibrancy to the Unit. Dr. Peter Vogel, Senior Lecturer in the Department of Life Sciences, died tragically in July.

## PUBLICATIONS

Total refereed publications rose slightly from 82 to 86, with the output per full-time, permanent faculty member remaining constant at 1.0. The per capita output from Geography/Geology rose to 1.9 while that of Chemistry fell to 1.1, equal to that of Mathematics & Computer Science. The output from Life Sciences at 0.44 per capita was notably poor and needs to be addressed. Total non-refereed publications plus conference presentations for the Faculty, at 105, was quite low relative to former years. Communicating with colleagues internationally is an important professional activity which should not be allowed to fall off, and this therefore is of concern.

| Department | No. Acad. Staff | Refereed Publicatons | Non-Refereed Publications | Conference Presentations |
|---|---|---|---|---|
| Biotechnology Centre | 4 | 9 | 1 | 12 |
| Chemistry | 18 | 19 | 4 | 16 |
| Geography & Geology | 7+7 | 26 | 12 | 21 |
| Life Sciences/ CMS | 14+2 | 7 | 3 | 6 |
| Mathematics & | 11 | 12 | 0 | 9 |
| Computer Science | 5 | 5 | 0 | 11 |
| Physics | 10 | 5 | 2 | 5 |
| Electron Microscopy | 2 | 2 | 0 | 0 |
| NPI/MIAS | 3 | 1 | 0 | 3 |
| **TOTAL:** | **83** | **86** | **22** | **83** |

## UNDERGRADUATE PROGRAMME

### Registration

In mid October 2006 the Faculty had 1588 students with financial approval, down 5.8 % from the previous year, but still slightly above the corresponding level in 2004. By the close of the year the number stood at 2215, an increase of 6.8 % over the previous year.

| | 2003/04 | 2004/05 | 2005/06 | 2006/07 |
|---|---|---|---|---|
| ***Total Registered:** | 1801 | 2002 | 2073 | 2215 |

*With financial approval at mid-August

### BSc Degree Results

The size of the graduating class increased again this year by 18.6 % but the percentage of first class degrees again fell to almost half the level in 2004/05, while Upper Second Class degrees fell from 99 in 2004/05 to 57. Lower Second Class and Pass degrees on the other hand increased from 51% in 2004/0 to 77% of the total. This is likely to be the consequence of the introduction of the GPA system which, despite efforts to minimize this, demonstrably results in diminishing the numbers of First and Upper Second Class degrees.

| | 2004/2005 | | 2005/2006 | | 2006/2007 | |
|---|---|---|---|---|---|---|
| **Level of Degree** | **N** | **%** | **N** | **%** | **N** | **%** |
| First | 26 | 10.2 | 21 | 7.7 | 17 | 5.2 |
| Upper Second | 99 | 38.8 | 91 | 33.2 | 57 | 17.5 |
| Lower Second | 84 | 32.9 | 133 | 48.5 | 163 | 50.2 |
| Pass | 46 | 18.1 | 29 | 10.6 | 88 | 27.1 |
| **Total Graduating:** | **255** | **100.0** | **274** | **100.0** | **325** | **100.0** |

## GRADUATE STUDIES

The Computer Based Management Information Systems (MIS) programme increased registration by 37 % indicating an increasing demand in this area. The continuing fall in FPAS MSc registrations, however, is of concern. This may suggest that a backed-up demand prior to the introduction of these programmes is being cleared, but a greater effort to advertise and increase the attractiveness and relevance of the programmes offered may help to counteract the effect. The MPhil and PhD programme numbers seem to be holding steady with the numbers of graduating students being between those for the preceding years.

| | **REGISTERED** | | | **GRADUATING†** | | |
|---|---|---|---|---|---|---|
| | **2004/05** | **2005/06** | **2006/07** | **2004/05** | **2005/06** | **2006/07** |
| MIS* | 73 | (76) | 104 | 42 | (45) | 47 |
| MSc | 165 | 130 | 102 | 48 | 35 | 39 |
| MPhil | 167 | 175 | 166 | 20 | 8 | 14 |
| PhD | 71 | 68 | 76 | 16 | 4 | 7 |
| Diploma | 11 | 7 | 26 | – | – | – |
| **Total:** | **487** | **456** | **474** | **126** | **92** | **46** |

*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).

†These are numbers for the class of the preceding year. Data for the 2006-07 year are not yet available.

## GRANTS / INCOME

The Faculty increased greatly its take of internal grant funds from J$8.6 m last year to J$27.9 m. This was largely boosted by two major grants for specific purposes to Chemistry and Life Sciences. The number of external grants recorded fell from 30 to 21 and the amount brought in from J$51 m to J$46.9 m. Reported income-generating activity fell from J$26.9 m from 19 activities in 2005/06 to J$19.3 m from 19 activities. Still, Chemistry claims to have exceeded its target of US$1 m in overall

extra-budgetary income. Departments rely increasingly upon these sources to support their teaching and research and other activities as the operational budgets provided are woefully inadequate. With so great a need it is disconcerting that all the taught Masters programmes in Life Sciences operated at a loss. Rectification of this must be a priority.

| Department | Internal Grants | N | External Grants | N | Income Generated | N |
|---|---|---|---|---|---|---|
| Chemistry | $14,388,500 | 8 | $7,846,885 | 4 | $10,091,972 | 10 |
| Electronics Unit | 0 | 0 | 0 | 0 | $1,950,465 | 1 |
| Geog/Geology | $250,000 | 1 | $9,215,000 | 5 | 0 | 0 |
| Life Sciences/CMS | $12,777,214 | 3 | $10,294,108 | 4 | $2,990,423* | 6 |
| Math & CompSci | 0 | 0 | 0 | 0 | $4,250,000* | 2 |
| Physics | 0 | 0 | $8,330,000 | 3 | 0 | 0 |
| Biotechnology | $405,300 | 3 | $4,750,000 | 2 | 0 | 0 |
| NPI | $93,150 | 1 | $6,427,500 | 3 | 0 | 0 |
| **TOTAL:** | **$27,914,164** | **16** | **$46,863,493** | **21** | **$19,282,860** | **19** |

*Income here is surplus after expenditures
Currency is stated in J$ equivalents converted, where necessary, at a rate of J$67.5 to US$1