

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

Professor Ronald Young, BSc, MSc *UWI*, PhD *St. And* – Head of Department Mathematics
Section (Section Head: Dr. Raymond McEachin)

WORK OF THE DEPARTMENT



After Departmental Reviews and staff reorganizations, members of the Mathematics Section have been engaged with renewed vigour in teaching activities, curriculum development and research. This was prompted by the realization that there were many issues that needed immediate and radical action. The department hired three Assistant Tutors to teach at the preliminary level and to assist the section to collect and grade course papers in a more professional manner. For example, a new course on analysis, M21Q, was launched to replace M21A which had been proving too challenging for our students. The tutors have played a useful role in helping to manage the flow of problem papers. The overall effect has been encouraging, indications being that courses which had raised concern are now being more professionally taught and assessed and are yielding better (and more predictable) results from the students. There is some evidence, then, that the renewed efforts to engage the students in their learning in a more student-centered environment are beginning to yield dividends.

Dr. Leighton Henry, a former Head of Mathematics and WIGUT President, and a longstanding Faculty member retired at the end of this year. We wish him well in his new ventures.

Professor Alexandra Rodkina, together with various co-authors, has published five research articles, as listed here:

- .* Rodkina, A and Mao X., On Asymptotic Behaviour of Solutions of Nonlinear Difference Equations with Nonmartingale Type Noise, *Advances in Mathematics Research*, Nova Science Publishers, 6 (2005), 97 -120
- .* Rodkina, A. On Asymtotic Stability of Nonlinear Stochastic Systems with Delay, *Cubo, A Mathematical Journal*, 7 (2005), 23 -42.
- .* Rodkina, A., and Schurz, H. Almost Sure Asymptotic Stability of Drift-Implicit Solutions of Theta-Method for Bilinear Ordinary Stochastic Differential Equations in \mathbf{R}^n , *Journal of Computation and Applied Mathematics*, 180 (2005), 13 -31.
- .* Appleby, J., Mao, X., and Rodkina, A. On Pathwise Super-Exponential Decay Rates of Solutions of Scalar Nonlinear Stochastic Differential Equations, *Stochastics: An International Journal of Probability and Stochastic Processes*, 77 (2005), 245 -269.
- .* Appleby, J. and Rodkina, A. Rates of Decay and Growth of Solutions to Linear Stochastic Differential Equations with State-Independent Perturbations, *Stochastics: An International Journal of Probability and Stochastic Processes*, 77 (2005), 269 -290.
- .* Prof. Rodkina has also given papers at two international conferences (at Munich and Moscow, resp.) and had one research visit (at Dublin) over the summer.

Professor Wen-Bin Zhang published one paper:

Mean-Value Theorems for Multiplicative Functions on Beurling's Generalized Integers, Math. Z., 251 (2005), 359 -391.

Computer Science Section (Section Head: Dr. Daniel Coore)

Staff complement: 8 (7+1on Fellowship leave)

Work of the Section

Curriculum: the core requirements have been strengthened to include a broader coverage of Computer Science (including areas of hardware and software design). Computer Science majors are also now required to complete a capstone project, aimed at strengthening the competencies of our graduates.

Student-centredness: Lab manuals and compiled software are being developed to allow students to make more efficient use of the labs, and work more efficiently from home if they choose to do this. The first set of CDs was made available to the students earlier in the year and are being used by our students. Based on our own assessments and feedback received, several improvements will be incorporated into future editions.

Income Generation:

Revenues from taught Master's programmes and Summer School amounted to approximately J\$1.4m.

Public Service

The Section currently has a representative on the UCJ IT/CS Board of studies, who participated in the setting of standards for both the MSc in Computer Science and MSc in Information Systems, and also served as a member of the assessment team for the BSc programmes in IT at two other local tertiary level institutions. We also have a representative on the CXC Board for Computer Science.

Student Numbers

A commendable number of students completed their course of study in Computer Science last year, with many of the undergraduates

earning first class honours.

Undergraduates: 57 (including 14 1st class honours)

MSc Computer Science 10 (including 2 with distinction)

MSc CBMIS: 41 (including 7 with distinction)

PUBLICATIONS/PRESENTATIONS

(These numbers are preliminary)

Refereed Book Chapters 2 Refereed Journals Articles 1 Conference Presentations 4 Refereed Conference Proceedings 4

Dr. Ezra Mugisa co-chaired a conference on Software Engineering Models (MODELS 2005) held at the Half Moon Resort in Montego Bay in October, 2005.

Targets for the coming year:

- .- Recruitment of new, permanent staff to fill vacancies which are compromising efficient and effective delivery of our programmes. By next year, we hope to have filled at least one post with a fully qualified (PhD) member of staff.
- .- Establishment of an internship program to complement our undergraduate curriculum. We have received positive feedback from both the industry and our students in response to preliminary discussions on the idea.
- .- Implementation of a project to create software tools to improve the management of the operations of the Section. We expect that these tools will improve the way electronic submissions are managed, how curricular information is disseminated, and how we collect feedback from students.
- .- Revival of the student-run computing club by allocating space for their meetings and activities and by providing technical assistance where necessary. A number of students have begun to show an interest in this, and we hope that by next year, students will see the club as a locus of vibrant activity that is affiliated with the Section.