

## A History of the Department of Mathematics and Computer Science



In 1949 Dr. Marjorie Lee Browne was one of the first two African American women to earn a Ph.D. in Mathematics. She earned her degree at the University of Michigan. After completing requirements for the degree, she was employed at North Carolina College (now North Carolina Central University) to teach mathematics.

Prior to 1951, mathematics and physics shared a joint program (department) chaired by Dr. William H. Robinson. In 1951 the departments separated; Dr. Browne became chair of the Department of Mathematics, and Dr. Robinson remained chair of the Department of Physics. The department was housed in the William H. Robinson Science Building, named after the first Chair of the Science Department and the first Chair of the Department of Physics.

However, during the 1988-1989 renovation, the department temporarily moved to the former ROTC Building. Then in 2005, it moved to the new Mary M. Townes Science Complex.

Dr. Marjorie Lee Browne remained chair of the Department of Mathematics until 1970. She took two sabbatical leaves during her tenure at NCCU. The first was during the 1952-53 academic year, at which time she studied at Cambridge University in England. The other sabbatical was spent at Columbia University in New York City. Mr. I. A. McCollum served as the interim chair during her first sabbatical. During the second one, Dr. C. E. Boulware served as interim chair. While serving as Chair, Dr. Browne taught fifteen hours per week. She also supervised the writing of ten master's degree theses. Dr. Browne insisted upon teaching the gatekeeper courses, Calculus I and II, to ensure that only those students who were academically able, and could properly represent the North Carolina College Department of Mathematics, would pursue a degree in mathematics.

Dr. Browne was not only an administrator and a professor. She was also personally interested in the welfare of her students. She was known to help them financially when they did not have money to buy books or when they needed funds for school activities. She also would give them odd jobs to perform at her home so that they could earn spending money.

During her tenure as department chair, Dr. Browne led efforts resulting in many accomplishments. In 1957 she was the Principal Investigator in a grant for which the Department of Mathematics (along with the Departments of Biology and Chemistry) was the first at an HBCU to receive a National Science Foundation Grant to host a summer institute for secondary school science and mathematics teachers. She hosted these institutes for thirteen years.

In 1963, Dr. Browne was the Principal Investigator for a \$60,000 grant from IBM to establish a digital computer center at an HBCU. The computer was an IBM 1620 machine, a state-of-the-art computer at that time. High-level programming languages (FORTRAN, COBOL) were introduced into the curriculum. In 1969, the Department received the first of seven Shell Foundation Scholarship Grants, for which Dr. Browne was the principal investigator.

Dr. Browne served as director of the first NSF sponsored Undergraduate Research Participation Program (1964 and 1965), as a member of the advisory panel to the NSF Undergraduate Scientific Equipment Program, and as a Faculty Consultant in Mathematics for the Ford Foundation. Dr. Browne received a Ford Foundation Faculty Fellowship to study at Cambridge University in England (1952-53); and in 1974, she became the first recipient of the W.W. Rankin Award, presented by the North Carolina Council of Teachers of Mathematics. This Rankin Award is designed to recognize and honor individuals for their outstanding contributions to the NCCTM and to mathematics education in North Carolina. This is the highest honor the NCCTM can bestow upon an individual.

Dr. Browne resigned as Chair of the Department of Mathematics in 1970. Dr. Boulware served as Interim Chair during the 1970-1972 academic years. Dr. William T. Fletcher was then appointed Chair of the department. Dr. Fletcher was a graduate of the North Carolina College Department of Mathematics. In 1981, under the leadership of Dr. Fletcher, Chair, the Computer Science Degree Program was approved. The Department was then named the Department of Mathematics and Computer Science. Since then, the number of students majoring in Computer Science has grown to twice the number majoring in Mathematics. The current number of combined majors is more than 200.

Dr. Fletcher oversaw many achievements and accomplishments in the department during his tenure as department chair, including the establishment of the following: an undergraduate computer science degree program; a chapter of Pi Mu Epsilon National Mathematics Honorary Fraternity; the Mathematics Learning Center; a Student Honors/Challenge Problem Solving seminar where students report on original solutions to honors problems and present results of small research investigations; annual department observance of Mathematics Awareness Week; the Marjorie Lee Browne Trust Fund to provide stipends

for full-tuition scholarship to students of superior academic achievements in the mathematical sciences; the Annual Marjorie Lee Browne Distinguished Alumni Lecture Series; and the Department's Speakers Bureau.

Dr. Fletcher was the principal writer of a petition and organizer of activities to establish a chapter of Sigma Xi, the Scientific Research Society, at NCCU, and he wrote proposals and received grants to plan, develop, implement and direct programs to strengthen the mathematical preparation of NCCU mathematics majors, public school teachers, and students of North Carolina.

Since his retirement, Dr. Fletcher has continued to be active in the Durham community. As a result, he was the recipient of the Year 2000 North Carolina Award in Science the highest civilian award that the State can bestow upon a citizen, as well as recipient of the Durham County and North Carolina State 2005 Jaycees award for Distinguished Community Service (senior category).



Dr. Alade Tokuta was appointed Chair of the Department of Mathematics and Computer Science in 1997. During his tenure, he has been responsible for many improvements in the department, particularly in the area of Computer Science. While the department was still in the Robinson Science Building, Dr. Tokuta upgraded the Mathematics Learning Center computer laboratory with state-of-the-art computers, as well as those in the computer laboratory for Computer Science majors. In 1999, NCCU was jointly awarded an NSF grant with James Madison University to develop an undergraduate track in computational science. Focusing on the visualization aspects of the collaboration, NCCU acquired four Silicon Graphics (SGI) O2 workstations and two SGI Octane workstations. Dr. Tokuta led the department in 2000 to secure funding to purchase its first departmental

Windows server. In 2003, when two additional Windows servers were purchased to replace the first one, he obtained a grant to equip the department with a classroom set of laptop computers.

In 2005, the department received its first dedicated server room where all the equipment could be securely housed outside a lab environment. Also in 2005, the department purchased its first supercomputer an SGI Altix with 16 processors and 32 GB of RAM. In 2006, NCCU contracted with ImmergeTech to provide an Immerge Visualization System, which is a 3x3 wall of LCD displays working in unison. After the department moved to the Mary M. Townes Science Building, Dr. Takuta received a grant to equip a robotics laboratory.

By 2006, the Computer Science faculty had quadrupled in number from one to four full-time Computer Science faculty members. In 2007 the department gained its first large-scale tape library for data retention of the increased storage needs of the department. Also in 2007 the department began maintaining its own five computer laboratories using a centralized server. Two servers were purchased, one to replace one bought in 2003 and the other to allow the department to use virtualization technology in its infrastructure.

Dr. Tokuta was responsible for the creation of a Master of Science in Computer and Information Science program and a Bachelor of Science degree in Information Science. The Department of Mathematics and Computer Science designed and implemented a cyber forensics concentration with the Department of Criminal Justice in which five of the six courses are taught by faculty in the Department of Mathematics and Computer Science.

Since 1951 four persons have served as Chair of the Department of Mathematics and Computer Science, while three others have served as interim chair. Their names and dates of tenure are the following:

Dr. Marjorie Lee Browne, Chair	1951-1970
Mr. I. A. McCollum, Interim Chair	1952-1953
Dr. C. E. Boulware, Interim Chair	1965-1966
Dr. C. E. Boulware, Interim Chair	1970-1972
Dr. William T. Fletcher, Chair	1972-1996
Dr. Mattie E. Moss, Interim Chair	1989-1990
Dr. Manuel Keeper, Chair	1996-1997
Dr. Russell Gosnell, Interim Chair	2006-2007
Dr. Alade Tokuta, Chair	1997-Present

Graduates of the department have been successful and have made significant contributions in many professional fields, including business and industry, academia, government, the judicial system, and the field of medicine. Many have earned doctorates in the field of mathematics or a related field. Outstanding graduates include, but are not limited to, the following list (in alphabetical order):

Joseph Battle, PhD - University of Michigan  
Dan Blue, Member of the North Carolina House of Representatives for more than 20 years and first African-American Speaker of the House  
Morris Blount, PhD – University of Connecticut  
Judge Elaine O'Neill Bushfan -- Durham Judicial Court System  
Harl'O Fisher, PhD -- Rensselaer Polytechnic Institute (Troy, NY)  
William T. Fletcher, PhD - University of Idaho  
Edward Irving, PhD - University of North Carolina at Chapel Hill  
Mattie E. Moss, EdD – Rutgers University; Interim Dean, College of Arts and Sciences  
Nathan D. Simms, PhD - Lehigh University  
John N. Smith -- First African-American Manager, IBM Software Development Laboratory, Research Triangle Park, NC  
Laura B. Smith, PhD - North Carolina State University  
Michael Stout, DDS -- Case Western Reserve University  
Sandra Wray-McAfee, PhD – University of Michigan  
Herbert L. Watkins – Senior Location Executive, IBM Charlotte  
Clifton Woods, PhD – North Carolina State University

The department has always been one with outstanding collegiality. Several faculty members have spent 20 or more years teaching in the department. These include Dr. Gary Brady, Dr. Russell Gosnell, Dr. Leon Hardy, Dr. Ralph Hughes, Mr. I. A. McCollum, Mr. Chavis Renwick, Mrs. Chantal Shafroth, and Dr. James Shoaf.

The mission of the Department of Mathematics and the Department of Mathematics and Computer Science is consistent with that of the University, which is “to provide its students with an educational environment that will stimulate their intellectual curiosities; enhance and develop academic and professional skills; instill a sense of pride, dignity, and discipline; and promote a consciousness of social responsibility and dedication to the advancement of the general welfare of the people of North Carolina, the United States, and the world” (NCCU Catalog).

Prepared by Laura Smith, Ph.D.  
Sources: Department Records  
April 2009