Author: RICHMOND J. AMPIAH-BONNEY

Author Info: Amherst College, Amherst, MA

Academic Manager – Department of Chemistry

# Education and Qualification

June 2006 University of Massachusetts, Amherst Analytical Chemistry, Ph. D.

October 2008 University of Hull, Hull, United Kingdom

Analytical Chemistry, MPhil

September 1996: University of Hull, Hull, United Kingdom

Analytical Sciences, M.Sc.

June 1993 Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. BSc (Hons) Chemistry

# Work Experience

16 January 2007 – present Amherst College, Amherst, MA Academic Manager

13 September 2006 – 10 January 2007 Holyoke Catholic High School, Granby, MA

Chemistry Teacher

17 July 2006 – 31 August 2006 Greenfield Community College, Greenfield, MA

Adjunct Faculty, Division of Business, Natural Sciences and Mathematics

September 2003 – March 2004 Smith College, Northampton, MA.

Laboratory Instructor

August 2002 – August 2003 Schering-Plough Corporation, Union, NJ/Department of

Chemistry, UMASS Amherst Research Associate

June 2001 – August 2002 Spectro Analytical Instruments, Fitchburg, MA Research Assistant

September 1996 – September 1997 Department of Chemical Engineering, Kumasi

Polytechnic, Kumasi, Ghana. Lecturer

May 1996 – August 1996 BP Amoco Chemicals, Saltend, Hull Internship

September 1993 – September 1995 Prempeh College, Kumasi

Chemistry Teacher, Department of Science

June 1992 – August 1993 Kwame Nkrumah University of Science and Technology

Teaching Assistant, Department of Chemistry

# Professional Membership:

Royal Society of Chemistry (MRSC), 1996 – present.

National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE), 2003 – present.

# Awards

1995: ODA (Great Britain) Scholarship to study MSc Analytical Sciences.

I certify under penalty of perjury that: I have earned a Ph.D. in Chemistry from the University of Massachusetts, Amherst as well as post-graduate degrees from the University of Hull, Hull, United Kingdom.

I was providing this professional opinion letter based on my experience as an Academic Manager in the Department of Chemistry at Amherst College.

As the Academic Manager of the Department of Chemistry at Amherst College, I am responsible for designing and implementing academic resources to support student learning of chemistry with regards to the diversity of pre-college preparations. These systems are put in place to help students make a smooth transition from high school to college learning, and to help them succeed. I also identify students who may be struggling with chemistry and provide the appropriate resources to help them.

I teach the first two courses in our introductory chemistry series, mainly to first year students but also to pre- med students and other students who need general chemistry as requirements for their majors. I design and teach lab courses for the introductory chemistry courses. This includes coordinating with the lab technical staff as well as the Director of Chemical and Laboratory Safety & Chemical Safety Officer to ensure safety in the teaching labs.

I am responsible for teaching chemistry in the science bridge program which takes place each summer for incoming first year students. This also involves assessing students for placement in math, science and writing courses.

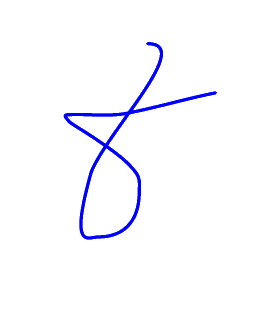
As an academic advisor to several students, I meet with these students on a regular basis to give advice on course choices, career choices and general well-being as well as support and encouragement.

As an environmental analytical chemist, I conduct and contribute to research into the determination, characterization and measurement of heavy metals and molecules of interest in environmental samples such as water, vegetables, soils, fish, etc. Heavy metal contamination of foodstuffs is a current issue that arouses concern in the scientific and health communities. Lead (Pb), mercury (Hg), arsenic (As) and cadmium (Cd) are examples of the highly toxic heavy metals. Due to their hazardous nature, maximum allowed levels have been set for these metals in drinking water, environmental water, soils, food (produce, meats, food products)

and air in many parts of the world. Enforcement of these maximum allowed levels depends first and foremost on the ability of analytical chemists to measure their concentrations to at least ten times lower than the maximum allowed level. There are two major challenges to the measurement of these metals and their metabolism compounds. The first is that they usually occur in very low concentrations where we need to measure them – in parts-per-billion or sometimes parts-per-trillion concentrations. Measurement of concentrations at such low levels pose great challenges, since these concentrations lie outside the range of detection of most analytical instruments. My research develops methods and techniques that make it possible to measure these metals at very low concentrations. The second challenge is that since these metals occur in “real samples”, they are found in a variation of complex mixtures of compounds and substances. A good method of analysis must first separate the metal of interest or render it in such a form that the method of determination will only respond to that heavy metal and nothing else in the sample matrix. My research develops methods of separation and preconcentration that makes this challenge no longer a problem. To this end, my research group and I have developed methods to determine lead in environmental samples, lead in water and beverage samples, the pesticide paraquat in vegetable samples, mercury species in water and freshwater fish samples, chromium in water and rice samples, cadmium in herbs, and the phytoextraction of arsenic from soil by the special grass known as Leersia Oryzoides.

As an evaluator, I am responsible for reviewing academic and experiential qualifications to form part of a candidate's credential evaluation report, providing a detailed analysis of the educational background and occupational experience that a person has received outside the United States.

Through the academic and professional experiences mentioned above, I have developed expert knowledge on analyzing, evaluating, and characterizing job duties, responsibilities, qualifications, and expertise.

Sincerely,

Richmond J. Ampiah-Bonney

Academic Manager, Department of Chemistry Amherst Colleg