Kwame Effah Osei Bonsu
Eastern Connecticut State University

Business Address:	156 Science Building, Department of Mathematics and Computer Science, 83 Windham Street, Willimantic CT 06226		
Telephone (Office):	860-465-4640	Fax (Office):	860-465-0479
Email:	oseib@easternct.edu		
Webpage:	http://www.easternct.edu/oseib/		

I. Education

2000- 2005	University of Vermont, USA	Ph.D. in Applied Mathematics
1993-1997	University of Cape Coast, Ghana	MPhil. Mathematics
1988-1992	University of Cape Coast, Ghana	BSc. Mathematics & Diploma in Education

II. Work Experience

August 2015 to Date	**Professor of Mathematics:** Eastern Connecticut State University (ECSU)
August 2009 to 2015	**Associate Professor of Mathematics:** Eastern Connecticut State University (ECSU)
August 2004 – 2009	**Assistant Professor of Mathematics**, ECSU
August 2000 – May 2004	**Graduate Teaching Fellow,** Department of Mathematics and Statistics, University of Vermont (UVM). **Graduate Research Assistant**, Department of Botany and Agricultural Biochemistry, UVM.
1998-2000	**Lecturer,** Department of Mathematics University of Cape Coast, Cape Coast, Ghana
1997 - 1998	**Assistant Lecturer,** Department of Mathematics University of Cape Coast, Cape Coast, Ghana
1993-1997	**Demonstrator,** Department of Mathematics University of Cape Coast, Cape Coast, Ghana
1992 – 1993	**Teaching Assistant,** Department of Mathematics University of Cape Coast, Cape Coast, Ghana

III. LOAD CREDIT ACTIVITY

I have on average taught over 12 credits per semester since 2004.

IV. CREATIVE ACTIVITIES

Research Interests

Modeling the dynamics of invasive species using evolutionary computations; deterministic uncertainty/stochastic differential equations; particle deposition in lungs; Modeling the spread of Buruli ulcer; Applications of mathematics to art (evolutionary art); Malaria modeling using both molecular and optical techniques.

Peer Reviewed Publications

1. Osei, B. M, Olsen M, Dancik, G. M. (201*). Modeling the spread of Hemlock Wolly Adelgid. Submitted.
2. Aidoo, A. A., Ackora-Prah, J., Gyamfi, K. B., Osei, B. M. (2013). A max-plus model for genetic algorithms. *International Journal of Pure and Applied Mathematics* 88(2), 247 – 262.
3. **Osei, B. M**. (2011). Asymptotic Behavior of the Greens function for a Second Order Boundary Value Problem. *International Journal of Contemporary Mathematical Sciences* 6:42, 2095-2104.
4. **Osei, B. M**., Ellingwood, C. D., Hoffmann, J. P., Bentil, D. E. (2011). Modeling Invasive Species Spread in Lake Champlain via Evolutionary Computations. *Theory in Biosciences* 130, 145-152.
5. **Osei, B. M**., Asiedu-Addo Samuel. (2010). Asymptotic Behavior of the Wronskian for a Second Order Boundary Value Problem. *International Electronic Journal of Pure and Applied Mathematics* 1:1, 94-101.
6. Aidoo A., **Osei B. M**. (2007). Prevalence of aquatic insects and arsenic concentration determine the geographical distribution of Mycobacterium ulcerans infection. *Computational and Mathematical Methods in Medicine* 8:4, 235 – 244.
7. Bentil D. E., **Osei B. M**., Ellingwood C. D., Hoffmann J. P. (2007). Analysis of a Schnute Postulate-based Unified Growth Model for Model Selection in Evolutionary Computations, Biosystems 90, 467-474.
8. **Osei, B. M**., Hoffmann, J. P., Ellingwood, C. D., Bentil, D. E. (2005). Probabilistic Uncertainty in Population Dynamics. *WSEAS Transactions on Biology and Biomedicine* 2(1), 51 – 56.
9. Hoffmann, J.P., Ellingwood, C.D., **Osei, B. M.** and Bentil, D.E. (2004). Ecological modeling via information theory and evolutionary computation. *Journal of Genetic Programming and Evolvable Machines* 5(2), 229-241.
10. Bentil, D. E., **Osei, B. M**., Ellingwood, C. D. Hoffmann, J. P. (2003). Deterministic uncertainty in population growth. *Proceedings of the 4th IEEE International Symposium on Uncertainty Modeling and Analysis (ISUMA).* IEEE Computer Society Press, Los Alamitos, CA., 274 - 278.
11. Hoffmann, J.P., Ellingwood, C.D., **Osei, B. M.** and Bentil, D.E. (2002). Turning genes off and on: Using genetic algorithms with complexity-based fitness for model selection in ecology. *Proceedings of the Genetic and Evolutionary Computation Conference (GECCO-2002)* – Workshop Special Session on Biological Applications of Evolutionary Computation, 38-40.
12. **Osei, B. M.** (2001). Asymptotic behavior of boundary condition functions for second order boundary value problems. *Journal of Natural Sciences* 1(2), 93-106.

Work Progress

2014	Development of Rapid diagnostic techniques for Malaria
2014	Immune System Dynamics of Buruli Ulcer.

2014 Analysis of reaction diffusion systems with weak diffusion leading to the stochastic Burgers' equation.

Proposals

April 2014 Funded Proposal for Summer Curriculum development Grant in Mathematical Biology for Bioinformatics ($2000.00).

April 2011 Funded Proposal for Immune System Dynamics for Buruli Ulcer ($2876.00)

April 2010 Funded Proposal for Summer Curriculum development Grant in Mathematical Biology ($2750.00).

April 2010 Funded Proposal for Student Research in Study (Re-thinking Development in Africa) in Ghana, West Africa, in Fulfillment of the LAW Requirement ($5000).

July 2009 Accepted Letter of Inquiry to the James McDonnell Foundation for a proposal entitled 'Development of Rapid Integrated Point of Care Technology for the Diagnosis of Malaria.

September 2008 Preliminary proposal for $595,725.00 has been submitted to the Bill & Melinda Gates Foundation for 60 months on a malaria project entitled Mathematical Modeling of Deformation and Flow of Infected Plasmodium Erythrocytes in Capillary Blockage by Molecular and Optical Techniques.

July 2008 I wrote an $849,095.00 Career proposal to the National Science Foundation for a 60 month for undergraduate training in population Dynamics.

February 1, 2008 A proposal for $4961.72 to fund the project entitled Modeling of deformations and flow of infected *Plasmodium Falciparum* erythrocytes in capillary blockage by an optical tweezer experiment.

Fall 2007 A $1500.00 AAUP Faculty Retraining Proposal entitled "Training in Biomedical Applications of Lasers."

October 6, 2006 A $1500 AAUP Faculty Development Proposal entitled "Model Construction and Computation."

February 2006 A $10,000 CSU research proposal entitled "Interaction of Prevalence of Aquatic Insects and Arsenic Concentration Determines Geographical Distribution of Mycobacterium Ulcerans in collaboration with Dr. Anthony Aidoo, Mathematics and Computer Science Department,

ECSU.

June 2005 A $3000 proposal in collaboration with Marion Callis, the director of Akus Gallery, ECSU for a University Hour entitled "A Self organizing Map of Beauty."

February 2005 A $5000 Connecticut State University System (CSUS) research proposal entitled Evolving Dynamic Invasive Species Models via Evolutionary Computation and Information Theory.

Conference Presentations

May 20 – 22, 2016 Presented a paper at the Biology and Medicine Through Mathematics Conference at Virginia Commonwealth University, Richmond VA.

May 26 – 28, 2015 Presented a workshop paper at the Investigative Workshop Challenges in modeling complexity of malaria-leishmaniasis co-infection in resource – limited regions, Knoxville TN.

Nov 9-11, 2014 Presented a paper at the International Conference on Mathematics for the Natural and Life Sciences held at Tlemcen, Algeria.

May 27-30, 2014 Presented a paper at the International Conference on Nonlinear Differential and Difference Equations, Side, Antalya, Turkey.

Sept 25-27, 2013 Plenary speaker at the Vaal International Conference on Computational Methods in Science and Engineering.

September 3-5 2012 Presented a Poster at the Multiscale Modeling in Medicine and Biology, University of Nottingham, Nottingham UK

June 25-29, 2012 Presented a paper at the World Congress of IFNA held in Athens, Greece

June 7 – 10, 2012 Presented a paper at the COPLAC Summer Faculty Institute on Liberal Learning in the Disciplines, University of North Carolina, Asheville

May 10-13, 2011 Chaired a session and presented a paper on the Seasonal Dynamics of Buruli Ulcer at the Second Buea International Conference on the Mathematical Sciences.

January 10-11, 2010 Presented a poster at The International Workshop on Systems Approaches in Immunology: Advances and Challenges in multi-scale modeling.

September 19-27, 2009 Paper presented at the European Conference on Complex Systems, University of Warwick, Coventry, UK.

May 12 – 16, 2009	Paper presented at the Buea International Conference on Mathematical Sciences, University of Buea, Buea, Cameroon
January 25 to 30, 2009	Poster presentation at the Gordon Conference on Molecular Approaches For Emergent/Re-Emergent Tropical Diseases, Galveston, TX.
March 29, 2008	Paper presented at the 11th CSUS Faculty Research Conference, Eastern Connecticut State University, Willimantic, CT
November 19- 24, 2007	Paper presented at the conference on Optics and Laser Applications in Medicine and Environmental Monitoring For Sustainable Development (OPTOLASERMED 2007), University of Cape Coast, Cape Coast, Ghana
April 16-19, 2007	Paper presented at the Fifth IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory held at The University of Georgia Center for Continuing Education in Athens, Georgia
May 21 to 26, 2006	Poster presented at the Workshop on Systems Biology and Molecular Modeling held at UCLA, Los Angeles, CA
October 22, 2005	Paper presented at the 9th CSUS Faculty Research Conference, held at Central Connecticut State University, New Britain, CT
October 28 to 30, 2005	Poster presented at the Workshop on Applications of Methods of Stochastic Systems and Statistical Physics in Biology at University of Notre Dame, South Bend, IN.
January 22 – 25, 2005	Paper presented at the WEAS International Conference on Mathematical Biology and Ecology, Udine, Italy.
January, 7-10, 2004	Poster presented at the American Mathematical Society (AMS) Joint Mathematics Meeting, Phoenix, USA.
June, 11 - 22 2001	Poster presented at the International Workshop on Protein Folding, Structure and Design, Trieste, Italy.
September 24 – October 1999	A group paper entitled “Modeling and Prediction of Ozone levels in Austria” presented at the workshop on ‘modeling real systems: a hands-on first encounter with industrial mathematics', Trieste, Italy.

Invited Seminars

September 23, 2013	Invited to present a paper at Ghana International School in Accra Ghana. My paper was entitled "Connections between Interdisciplinary Studies and Liberal Arts Education."
April 28, 2012	Invited to present the keynote address at AFRIMATH 2012 at Boston University. My paper was entitled "Evolutionary Algorithms and Eco-informatics: A myth or reality?"
November 24, 2008	Invited to present a paper entitled "How fat are you?" at University of Education, in Winneba, Ghana.
April 16-19, 2007	Invited to speak at the Fifth IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory held at The University of Georgia Center for Continuing Education in Athens, Georgia
September 9-12, 2006	Invited to present a paper entitled "Modeling the Dynamics of Invasive Species via a modified Genetic Algorithm" presented at the SIAM conference on Non-linear Waves and Coherent Structures held at University of Washington in Seattle
3-13 June 2003	Invited to present a paper entitled " Schnute postulate-based Unified Model for Growth" 5th Regional College on Modeling, Simulation and Optimization, Accra, Ghana
May 2001	Invited to present a paper entitled "A novel approach for developing PDE models of the spread of Invasive Species" with Dr James Hoffman and Chris Ellingwood of the Department of Botany and Agricultural Biochemistry of The University of Vermont at the Evolutionary Computation – IBM Workshop, Essex Junction, VT

V. SERVICE

Service to Department

Spring 2018	Calculus Text Selection Committee
Fall 2017	Departmental Evaluation Committee (DEC)
Spring, Fall 2017	Mathematics Curriculum Review Committee
Fall 2016	DEC Member
Fall 2015	DEC Member
Fall 2013	DEC Member

Fall 2012	DEC Member
Fall 2012	Chair, Applied Search Committee
Spring 2012	Chair Calculus Committee
Fall 2010	DEC Member
Fall 2009	Departmental Liaison for the Advising Center
August 2004 – to date	Member, Statistics Committee, Department of Mathematics and Computer Science, Eastern Connecticut State University
Summer 2007	Member, One year Appointment for Mathematics Department Search Committee

Service to University

Spring 2018/2019	Member BOR CSU AAUP Research Grant Committee
Fall 2015, Fall 2017	Member of search committee for Executive President for Human Resources at ECSU
Fall 2013 to Spring 2015	Mathematics and Computer Science Senate Representative
Fall 2013 – Spring 2016	Sabbatic Leave Member
Fall 2013 to Spring 2015	Research Reassigned Time Committee
Fall 2013 – Spring 2013	Member, Search Committee Health Care Management position
Fall 2013 and Spring 2014	Member, Search Committee Sustainable Energy Position
Fall 2012 and Spring 2013	Member, Search Committee Environmental Geoscience position
Fall 2011 and Spring 2012	Member, Search for Earth and Environmental Science position
Spring 2008	Senate Representative at the Liberal Arts Program Committee
Spring 2008 to Fall 2008	Mathematics and Computer Science Department Representative at the University Senate
Fall 2007 to Spring 2009	Member Sabbatic Leave Committee
Summer 2007 to 2008	Member CSU Faculty Research Conference Committee
Fall 2007	Member, Search for Coordinator of Akus Gallery
Spring 2007 to Fall 2008	Member, Science Building Art Committee
Fall 2006 to date	Akus Gallery Advisory Committee
Spring 2007	Member, University Assistant Search Committee
Fall 2006	Member, Nasin House Search Committee
Spring 2006 to Date	Volunteer, STEP-CAP interviews
Summer 2005, 2006	Advisor, Student Orientation Advising Registration Program (SOAR), ECSU.
Summer 2005, 2006	Faculty Facilitator, (SOAR), ECSU.
January 25, 2006	Panel Member, University Hour (A Self Organizing Map of Beauty)
2004-to date	Advisor/Mentor, to an average of 17 Assigned Students at ECSU per semester
March 2005- date	Member, ECSU Foundation Scholarship Selection Committee

OTHER SERVICE

2002 - 2003	Member, Graduate Committee, Department of Mathematics and Statistics, UVM, VT
Summer 2001, 2002	Councilor, University of Vermont/Governor's Institute of Vermont

and 2003 Engineering, Mathematics and Computer Science Summer Program
October 4, 2003 Co-advisor, New England Board of Higher Education Science Network Workshop held at Massachusetts Institute of Technology, Cambridge MA.

VI. PROFESSIONAL ACTIVITY

Conferences and Workshops

May 20 – 22 2016 Participant at the Biology and Medicine Through Mathematics Conference at Virginia Commonwealth University, Richmond VA.

May 26 – 28, 2015 Participant, Investigative Workshop Challenges in modeling complexity of malaria-leishmaniasis co-infection in resource-limited regions, Knoxville TN

Nov 9-11, 2014 Participant, the International Conference on Mathematics for the Natural and Life Sciences, Tlemcen, Algeria

May 27-30, 2014 Participant, International Conference on Nonlinear Differential And Difference Equations, Side, Antalya, Turkey.

September 25 – 27, 2013 Participant, Vaal Conference on Computational Methods in Science and Engineering Vaal University, South Africa

August 19 – 22, 2013 Participant, Summer Workshop for Teachers of Mathematics, University of Waterloo, Canada

September 3-5, 2012 Participant, Multiscale Modeling in Medicine and Biology, Nottingham, UK

June 25-29, 2012 Participant, World Congress of IFNA, Athens, Greece

June 15-17, 2011 Participant, NIMBioS Investigative Workshop – Malaria Modeling and control, Knoxville, TN

May 10-13, 2011 Second Buea International Conference on the Mathematical Sciences, Buea, Cameroon

January 19-21, 2011 NIMBioS Investigative Workshop - Solid Tumor Modeling, Knoxville, TN

February 22-26, 2010 Participant, Analysis and Computation of Incompressible Fluids, Institute of Mathematics and its applications Minneapolis, MN

January 10-11, 2010 Participant, The International Workshop on Systems Approaches in Immunology: Advances and Challenges in multi-scale modeling. Santa Fe, New Mexico

September 19-27, 2009 Participant, European Conference on Complex Systems, 2009, University of Warwick, Coventry, UK.

May 12 – 16, 2009 Participant, Buea International Conference on Mathematical Sciences, University of Buea, Buea, Cameroon.

January 25 to 30, 2009 Participant, Gordon Conference on Molecular Approaches For Emergent/Re-Emergent Tropical Diseases, Galveston, TX.

September 27-28, 2008 Participant, Workshop on Mathematical Modeling of Human Metabolism and Body Weight Regulation, Bethesda, MD

March 29, 2008 Participant, The 11th CSUS Faculty Research Conference, Eastern Connecticut, State University.

February 11- 22, Participant, Winter College on Micro and Nano Photonics for Life

2008	Sciences, ICTP, Trieste, Italy
December 4, 2007	Participant, COMSOL Multiphysics Modeling Workshop, held at Hartford, CT.
November 19-24 2007	Participant, International Conference on Optics and Laser Applications in Medicine and Environmental Monitoring For Sustainable Development (OPTOLASERMED 2007), University of Cape Coast, Cape Coast, Ghana
October 13-14, 2007	Participant, Wesleyan Dynamical Systems Conference held at Wesleyan University, Middletown CT..
June 20-23, 2007	Participant, Mathematics for Social Justice held at Middlebury College, Middlebury, VT.
April 16-19, 2007	Participant, The Fifth IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena: Computation and Theory held at The University of Georgia Center for Continuing Education in Athens, Georgia
October 14, 2006	Participant, 10th CSUS Faculty Research Conference, Western Connecticut State University, Danbury, CT.
September 9 -12, 2006	Participant, SIAM conference on Non-linear Waves and Coherent Structures held in University of Washington, Seattle, WA.
May 21 to 26, 2006	Participant, Workshop on Systems Biology and Molecular Modeling held at UCLA, Los Angeles, CA.
April 4, 2006	Participant, Comsol Multiphysics Modeling Workshop, held at Micro Tek, Burlington, MA.
October 22, 2005	Participant, 9th CSUS Faculty Research Conference, held at Central Connecticut State University, New Britain, CT
October 28 to 30, 2005	Participant at Workshop on Applications of Methods of Stochastic Systems and Statistical Physics in Biology at University of Notre Dame, South Bend, IN
January 22 – 25, 2005	Participant, WEAS International Conference on Mathematical Biology and Ecology, Udine, Italy.
January, 7-10, 2004	Participant, AMS Joint Mathematics Meeting, Phoenix, USA.
June 4, 2003	Participant, New England Board of Higher Education Science Network Workshop, Massachusetts Institute of Technology, Cambridge Massachusetts.
April 2, 2002	Participant, Technology in Classroom Workshop, UVM, VT.
June, 11 - 22 2001	Participant, International Workshop on Protein Folding, Structure and Design, Trieste, Italy.
January 8-10 2001	Participant, AMS Short Course on Mathematical Biology, New Orleans, USA.
January 10 -13 2001	Participant, AMS Joint Mathematics Meeting, New Orleans, USA
September 24 – October 22 1999	Participant, Modeling Real Systems: A Hands-on First Encounter with Industrial Mathematics, Trieste Italy.
July 22 - August 2, 1996	Participant, 2nd Edward Bouchet Regional Conference on Functional Analysis and its Applications to Differential Equations. Accra, Ghana.
April 15- May 3, 1996	Participant, School on Nonlinear Functional Analysis and Applications to Differential Equations, Trieste, Italy.

Professional Affiliation

1. Member Society for Mathematical Biology
2. Member Complex Systems Society
3. Member The International Federation of Nonlinear Analyst (IFNA)
4. Member American Mathematical Society

Other

- Ph. D Thesis Examiner for University of Western Cape, South Africa
- Chaired a session at the Vaal International Conference on Computational Methods in Science and Engineering.
- Chaired a session on Ghana at the World Congress of IFNA in Athens
- Chaired a session on Ghana at the Second Buea International Conference on the Mathematical Sciences, Buea Cameroon.
- Chaired AFRIMATH 2012 at Boston University.
- External Reviewer for National Research Foundation in South Africa
- Guest Editor of a Special Issue on "Novel Developments in Theoretical and Mathematical Biophysics" in Computational and Mathematical Methods in Medicine.
- Editorial Board member of International Journal of Mathematical Sciences in Medicine (IJMSM)
- Editorial Board member of Global Journal of Mathematical Sciences (GJMS)
- Advisor – African Club of Eastern Connecticut State University
- Advisor: PhD students at University of Mining, Tarkwa in Ghana.
- Advisor: PhD and MSc students at Kwame Nkrumah University of Science and Technology, Kumasi, Ghana.
- Organized in conjunction with the African American Affairs Commission (AAAC) to bring 25 Ghanaian High school principals for a leadership training to Connecticut
- Moderator – 2012 ECSU Student Arts and Science Research Conference and Exhibition
- Member Editorial Board Computational Biology
- Reviewer for several journals in Applied Mathematics
- Member – Program Committee (PC) Member for the Intelligent Systems Symposium, of the 2009 World Congress on Computer Science and Information Engineering.
- Moderator – 2008 CSUS Faculty Research Conference
- Member – 2008 Scholarship Committee for the African Technology Conference to be held in Accra, Ghana from July 15-18, 2008
- Moderator – 2005 CSUS Faculty Research Conference.

Special Award

June, 1995 Best project award at 7th International Workshop on the Use of Microcomputers in Science, Mathematics and Physics Education, Nairobi, Kenya.

Undergraduate/Graduate Mentoring

- Thesis Advisor to African Institute for Mathematical Sciences (AIMS-Senegal).
- Thesis Advisor for Kwame Nkrumah University of Science and Technology, Kumasi, Ghana
- Thesis advisor to Max Olsen for the Honors Program at Eastern Connecticut State University.
- Independent Study with Ganiatou Dowou (Fall 2009), Katherine Marios (Spring 2013), Jeremy Macdonough (Fall 2014), and Morgan Guimod (Fall 2015).
- Volunteered to travel and mentor 17 Eastern Students to Ghana in Africa 2009 and 10 students in 2010.
- I was a research advisor and mentor to Jenae Beauchamp and Nicole Beauchamp of Eastern Connecticut State University who both presented their research at both Regional and National Undergraduate Research Conferences.