

LEARNERS **TODAY,** LEADERS **TOMORROW**

13th Annual STEP Statewide Student Conference
March 25–27, 2011 • Albany Marriott • Albany, New York

KICKOFF CELEBRATION OF 25 YEARS OF STUDENT ACADEMIC EXCELLENCE



THE STATE EDUCATION DEPARTMENT / THE UNIVERSITY OF THE STATE OF NEW YORK /
ALBANY, NY 12234

Office of K-16 Initiatives & Access Programs
Pre-Collegiate Preparation Programs Unit
Education Building Addition, Room 967
Tel. (518) 486-5202
Fax (518) 474-0060

March 2011

Dear 2011 STEP Conference Participants:

Greetings and welcome from the New York State Education Department, Office of K-16 Initiatives and Access Programs, to the thirteenth annual Statewide Science and Technology Entry Program (STEP) Student Conference and Poster Competition. It is wonderful that you are here as a participant and/or presenter of your research.

Throughout the year students such as you, have been participating in STEP activities in many areas of the State. For many, the goal is reached when they attend this conference in which they have the opportunity for professional development; to expand upon their knowledge and to present the research that they have been working on during the course of the program year.

In the "State of the Union" address, President Barack Obama spent a considerable amount of time discussing issues relative to science and mathematics learning in this country and how it compares to other nations. And while the United States is faced with many challenges regarding competing globally in mathematics and science, programs such as STEP epitomize what the President is promoting for all students. He went on to say *"we need to teach our kids that it's not just the winner of the Super Bowl who deserves to be celebrated, but the winner of the science fair."* Indeed, this venue does just that!

Your challenge this week end is to partake in as many activities as possible and to absorb information that the various workshop presenters, professionals, speakers and fellow students are imparting to you. Be an active participant and realize that this exciting conference is one more important "step" in your journey to achieving your academic and professional goals.

Best wishes to you for an enjoyable and productive conference.

Sincerely,

Geneva M. Lewis
Associate,
Higher Education Opportunity

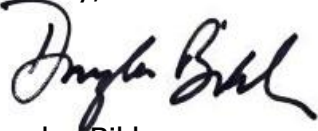
Dear STEP 2011 Statewide Student Conference Participants:

Welcome to the 13th Annual STEP Statewide Student Conference, "STEP: Learners Today, Leaders Tomorrow." The planning committee has designed this year's conference to be especially engaging, to help you achieve academic success and prepare you for what we hope will be many professional opportunities ahead. Please pay special attention to the topic areas of student responsibility, scholarly research, academic achievement, leadership skills, internships, goal setting, self esteem, communication skills, personal success and college preparation—as these are crucial components of your toolkit for success.

I strongly encourage you to take full advantage of your time in Albany, which has been carefully planned for your benefit—from fellowship to lessons learned. Your participation in the conference already reflects your commitment to pursuing college degree program in a scientific, technical, or health-related field. This conference will provide you with helpful tools to achieve your goal.

Enjoy this year's "Kickoff Celebration of 25 Years of Student Academic Excellence," and I look forward to hearing about the research, studies and investigations that will be shared at the conference. My best wishes to you for a productive conference and in the future.

Sincerely,



Douglas Biklen
Dean, School of Education
Syracuse University

CONFERENCE PLANNING COMMITTEE

STEP Conference 2011

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Dr. Leonese Nelson

Syracuse University

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Executive Director, Partnership for Better
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Administrative Specialist, STEP Program
Undergraduate Assistant, STEP Program
Undergraduate Assistant, STEP Program

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BOOK LAYOUT AND DESIGN

Alison Dupree
STEP Staff

Editor

BOOK COVER DESIGN

W. Michael McGrath

Designer, Syracuse University News and
Publications

CONFERENCE PLANNING COMMITTEE

STEP Conference 2011

STEP STUDENT CONFERENCE AMBASSADORS

Albany Medical College
Borough of Manhattan Community College
Bronx Community College
Clarkson University
College of Staten Island
Farmingdale State College
Fordham University
Fulton Montgomery Community College
Hofstra University
Hostos Community College
Iona College
LeMoyne College
Long Island University
Manhattanville College
Medgar Evers College
Medgar Evers College Jackie Robinson Center
Mercy College
Mohawk Valley Community College
Monroe Community College
New York College of Osteopathic Medicine
New York University
New York University School of Medicine
Pratt Institute
Queensborough Community College
Rensselaer Polytechnic Institute
Rochester Institute of Technology
St. John's University
Stony Brook University
Suffolk County Community College
SUNY College at Old Westbury
SUNY Albany
SUNY Buffalo
SUNY Buffalo Biomedical Program
SUNY Downstate Medical Center
SUNY Potsdam
Syracuse University
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Kevin Grant, Jr.
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Deanna Ibey
Jair Thomas
Christopher Munroe

WELCOME ADDRESS

STEP Conference 2011



Dr. Tyrone Bledsoe

Dr. Tyrone Bledsoe is founder and current Executive Director of the *Student African American Brotherhood Organization* (SAAB)—a national organization with 250 chapters in 40 states that endeavors to instill a “spirit of care” in, and enhance the experiences of, African American males in high schools, colleges, and universities. Before transitioning to his current position with SAAB, Dr. Bledsoe served as Vice President for Student Life and Special Assistant to the President at the University of Toledo.

He received his Bachelor of Arts and Master of Education degrees from Mississippi State University, and went on to complete a Ph.D. in Counseling and Student Affairs Administration at the University of Georgia. Dr. Bledsoe’s academic and professional prowess is underscored by his recognition as *Outstanding Doctoral Student* in the State of Georgia, and most recently, *Outstanding Doctoral Alumnus* by the University of Georgia.

Dr. Bledsoe is a contributing author to the book *African American Men in College*, and his scholarly contributions were further solidified through his appearance on Congressman Jesse Jackson, Jr.’s talk show “*Perfect Union*,” where he discussed issues pertaining to African American and Latino males. Further, his expertise was requested for an international research team that addressed issues affecting men of color in Europe, Trinidad, Barbados, and the Bahamas. In 1999, he was invited to serve as guest lecturer at the Oxford University Roundtable Institute in Oxford, England to discuss his work with the latter. Dr. Bledsoe is highly recognized by several professional associations for his research, publication, presentation, and scholarly work. Because of his many contributions to Student Affairs in higher education, his membership with the American College Personnel Association (ACPA) is distinguished as Diamond Honoree. His international work has earned him notoriety with *Ashoka*, a global association of the world’s leading social entrepreneurs, which recently selected him as one of the most outstanding social innovators in the world.

Dr. Bledsoe was born and reared in Grenada, Mississippi and currently resides in Toledo, Ohio. Phi Beta Sigma Fraternity, Inc. recognizes him as a life member. The thousands who have heard him speak have deemed him one of the most gifted and dynamic motivational speakers. He is a very spiritual, thought-provoking lecturer, but most importantly, a father to 24-year old Tyrone Jr.

KEYNOTE ADDRESS

STEP Conference 2⁰¹¹



Dr. Alain E. Kaloyeros

Dr. Alain E. Kaloyeros is a Professor of Nanoscience, and Senior Vice President and Chief Executive Officer for the College of Nanoscale Science and Engineering (CNSE) at the State University of New York at Albany (SUNY Albany). He also serves as SUNY Albany Vice President and Special Advisor to the President for University-Wide Economic Innovation and Outreach.

Dr. Kaloyeros received his Ph.D. in Experimental Condensed Matter Physics from the University of Illinois, Urbana-Champaign in 1987. He has authored and co-authored over 150 articles, and contributed to eight books on topics pertaining to the science and technology of nanoelectronics and nano-optoelectronics ultrathin film materials, atomic layer vapor phase deposition processes, nanoscale x-ray, electron and photon-based characterization, and metrology.

Dr. Kaloyeros holds 13 U.S. patents, and is a past recipient of numerous national awards in his discipline for academic scholarship, invention and innovation, and entrepreneurship. He was selected for the 2003, 2005, 2007, and 2008 “Tech Valley’s Hot 10,” an annual list of the “top 10 movers and shakers” in New York’s Capital Region. He is listed among the Who’s Who in Science and Engineering, Higher Education Administration, and Sciences Higher Education. He has been actively involved in the development and implementation of New York’s high-tech strategy to become a global leader in the nanotechnology-driven economy of the 21st Century. A critical cornerstone of New York’s high-technology strategy is the establishment of the SUNY Albany College of Nanoscale Science and Engineering as a global resource for research and development (R&D), technology deployment, education, and commercialization for the international nanotechnology industry.

CNSE has generated over \$7 billion in public and private investments. The CNSE Albany NanoTech Complex spreads from Albany to Rochester, and houses major R&D centers involving corporate giants that include IBM, GlobalFoundries, Intel, Toshiba, Tokyo Electron, Applied Materials, ASML, LAM, Ebara, and International SEMATECH. The CNSE Albany NanoTech Complex consists of over 800,000 square feet of state-of-the-art facilities, including 80,000 square feet of Class 1 capable cleanrooms that house the only 300mm wafer integrated R&D line in the academic world. Over 2,500 corporate and university researchers and scientists from more than 250 global corporate partners and leading research universities currently work on site. CNSE is undergoing expansion, and once completed the CNSE Albany NanoTech Complex is expected to house over 3,750 scientists, researchers, and engineers from CNSE and global corporations.

CONFERENCE HONOREES

STEP Conference 2011

Patricia E. Clark



Patricia E. Clark has devoted 24 years of loyal service to the students of New York State as the Director for the University at Buffalo Science and Technology Entry Program (STEP). She was a resolute voice for STEP statewide programs, and campaigned annually at state and local legislative offices in support of, and advocacy for, STEP's sustained existence. Mrs. Clark's service to others was further demonstrated through her desire to ensure the continued development and excellence of each statewide program by sharing her knowledge and insight as an enthusiastic member of the Association for Program Administrators of CSTEP and STEP, Inc. (APACS).

STEP is engrained in the heart of Mrs. Clark, an averment that is most notable in her tireless determination to provide students with exemplary completion in STEP. This tenacious allegiance is evidenced in UB STEP's ability to maintain an ongoing 100% graduation rate over twenty years, along with a 98.5% college attendance rate, both which began under her direction. Some of UB STEP alums are practicing medicine (e.g., surgery, pediatrics, obstetrics and gynecology, family medicine, microbiology, forensic science, physical therapy), are in the field of engineering (e.g., computer, civil, electrical, industrial, microelectronics, mechanical), and provide service in law, social work, science education, and library science, to name a few. Mrs. Clark has been regularly recognized for her service, and has received numerous statewide awards and proclamations for her work with STEP.

She is eternally grateful and thankful to have had the pleasure to impact the lives of over 3,000 first and second generation STEP participants during her tenure.

CONFERENCE HONOREES

STEP Conference 2011

Uriel G. Reid



Uriel Reid was born in New York City, the third of ten children. He grew up in Harlem, Chelsea, and the South Bronx, and was educated in the New York City Public School System. He is married to Lorraine Reid and they have three loving children Courtney, Matthew, and Lauren. He has also been blessed with two wonderful grandchildren, Hunter and Iona Pearl.

Uriel attended the Academy of Aeronautics in Flushing, Queens and earned a diploma as a licensed Aircraft Mechanic/Designer. He also attended the City College of New York and earned a B.S. degree from the School of Engineering. He was employed by Republic Aviation four years as an Experimental Aircraft Mechanic/Designer and completed his military obligation under the Reserved Forces Act. He was then employed by IBM and served 32 years before retiring in 1991 as a Senior Systems Analyst.

Uriel was first introduced to Science and Technology Entry Program (STEP) at Manhattanville College in 1988 when asked to serve as a volunteer teacher, tutor, and mentor to the initial students recruited to participate in the program. He then accepted the responsibilities of STEP and the Collegiate Science and Technology Entry Program (CSTEP) Director after his retirement from IBM in 1991, and continues in that same capacity as a dedicated advocate for affirmative action through programs such as CSTEP, STEP, and the Higher Education Opportunity Program (HEOP). He actively supports the continued guidance, encouragement, and mentoring of our students to study for careers in the Science Technology Engineering and Mathematics (STEM) professions. Uriel received a Community Service Award at the Westchester Region NAACP ACT-SO Twenty Fifth Annual Awards Ceremony in 2008 and was named *Motivating Teacher* by the Urban League of Westchester Black Scholars Community Partnership Initiative in 2009.

Uriel is an active member of Grace Episcopal Church in White Plains, New York where his "Ministry to Youth" continues as a teacher in the Rite 13, Journey to Adulthood Program. He is also an acolyte and Lay Eucharistic Minister with responsibilities to take communion to the sick and shut-in parishioners.

CONFERENCE SCHEDULE

STEP Conference 2⁰¹¹

Friday, March 25th

TIME	ACTIVITY	ROOM
3:00pm~7:30pm	Conference Registration	Albany/Colonie
4:15pm~5:30pm	STUDENT FINANCIAL PLANNING <i>"Financial Literacy: Understanding and Knowing the Rules of the Game"</i> Dr. Tracy P. Johnson	Salon A
4:15pm~5:30pm	PROFESSIONAL DEVELOPMENT <i>"The Student Guide to Developing a Professional Wardrobe"</i> Tanaya Thomas-Edwards	Salon B
4:15pm~5:30pm	CAREER EXPLORATION <i>"Driven and Want to Make a Positive Difference? Engineering is for You!"</i> Dr. Ashraf Ghaly	Salon C
4:15pm~5:30pm	GOAL SETTING <i>"Roadmap to Success"</i> Annette Toms	Schenectady/Troy
6:15pm~8:15pm	Buffet Dinner & Welcome Address	Ballroom Salons
7:00pm~7:30pm	Welcome Address Dr. Tyrone Bledsoe	Ballroom Salons
7:30pm~8:30pm	STEP Pep Rally/Roll Call	Ballroom Salons
9:00pm~11:30pm	Poetry Slam/Coffee House/Talent Show	Empire Room
9:00pm~11:30pm	Games	Albany/Colonie Schenectady/Troy
9:00pm~11:30pm	APACS Reception	State Room

CONFERENCE SCHEDULE

STEP Conference 2⁰¹¹

Saturday, March 26th

TIME	ACTIVITY	ROOM
7:30am~8:30am	Breakfast	Salons DEFGH
8:30am~8:45am	Plenary Session	Salons DEFGH
8:30am~9:15am	Student Poster Display Setup	Empire Room
9:00am~10:30am	Conference Registration	Board Room
9:00am~10:15am	Student Concurrent Workshop Sessions	Salons A and B Albany/Colonie Schenectady/Troy
9:15am~12:00pm	STEP Professional Staff Development <i>"Developing a Successful Science & Technology Entry Program (STEP)"</i> STEP Project Administrators	Salon C
9:15am~10:45am	Judges' Meeting for Student Research Poster Competition	State Room
10:30am~11:45am	Student Concurrent Workshop Sessions	Salons A and B Albany/Colonie Schenectady/Troy
12:00pm~1:15pm	Buffet Lunch	Salons DEFGH
1:30pm~2:30pm	Student Research Poster Competition <i>Student Presenters Setup</i>	Empire Room
1:30pm~2:00pm	College Fair Setup	Salons A and B
1:15pm~2:15pm	Student Concurrent Workshop Sessions	Salon C Albany/Colonie Schenectady/Troy

CONFERENCE SCHEDULE

STEP Conference 2⁰¹¹

Saturday, March 26th (continued)

TIME	ACTIVITY	ROOM
2:15pm~4:00pm	4th Annual STEP College Fair	Salons A and B
2:30pm~5:00pm	Student Research Poster Competition	Empire Room
2:30pm~3:30pm	Student Concurrent Workshop Sessions	Salon C Albany/Colonie Schenetady/Troy
6:30pm~8:30pm	Kickoff Celebratory Dinner & Keynote Address Keynote Address Dr. Alain E. Kaloyeros	Ballroom Salons
9:15pm~12:00am	Party	Empire Room
9:15pm~12:00am	Games	Albany/Colonie Schenectady/Troy

Sunday, March 27th

TIME	ACTIVITY	ROOM
8:00am~9:30am	Breakfast	Salons DEFGH
9:00am~10:15am	Closing Plenary Session Student Research Poster Competition Awards Ceremony Slide Show Closing Remarks	Salons DEFGH
10:30am~11:30am	Check-Out and Departure	Hotel Lobby

CONFERENCE SCHEDULE

Friday, March 25th

3:00pm~7:30pm
CONFERENCE REGISTRATION
Albany/Colonie

STUDENT CONCURRENT WORKSHOP SESSIONS

4:15pm~5:30pm

BALLROOM SALONS

PRESENTERS	ROOMS	WORKSHOP TITLES
Dr. Tracy P. Johnson	Salon A	STUDENT FINANCIAL PLANNING <i>"Financial Literacy: Understanding and Knowing the Rules of the Game"</i>
Tanaya Thomas-Edwards	Salon B	PROFESSIONAL DEVELOPMENT <i>"The Student Guide to Developing a Professional Wardrobe"</i>
Dr. Ashraf Ghaly	Salon C	CAREER EXPLORATION <i>"Driven and Want to Make a Positive Difference? Engineering is for You!"</i>
Annette Toms	Schenectady/ Troy	GOAL SETTING <i>"Roadmap to Success"</i>

6:15pm~8:15pm
BUFFET DINNER/WELCOME ADDRESS
Ballroom Salons

7:00pm~7:30pm
WELCOME ADDRESS
Dr. Tyrone Bledsoe

7:30pm~8:30pm
STEP PEP RALLY/ROLL CALL
Ballroom Salons

CONFERENCE SCHEDULE

Friday, March 25th (continued)

9:00pm~11:30pm

POETRY SLAM/COFFEE HOUSE/TALENT SHOW

Empire Room

GAMES

Albany/Colonie

Schenectady/Troy

APACS RECEPTION

State Room

CONFERENCE SCHEDULE

Saturday, March 26th

7:30am~8:30am
BREAKFAST
 Salons DEFGH

8:30am~8:45am
PLENARY SESSION
 Salons DEFGH

8:30am~9:15am
STUDENT POSTER DISPLAY SETUP
 Empire Room

9:00am~10:30am
CONFERENCE REGISTRATION
 Board Room

STUDENT CONCURRENT WORKSHOP SESSIONS

9:00am~10:15am

BALLROOM SALONS

PRESENTERS	ROOMS	WORKSHOP TITLES
Pamala L. Brown-Grinion	Salon A	<i>"Getting the Gig and Keeping It"</i>
Huao Hwang	Salon B	<i>"Acing Standardized Tests (PSAT, SAT, SAT II & ACT) with Planning, Preparation, and Persistency"</i>
Thelma J. Uter Wayne T. Uter	Albany/Colonie	<i>"Aerobics for the Learning Brain"</i>
Tykeia N. Robinson Latoya D. Newton	Schenectady/ Troy	<i>"The World Wide Web and What That Means For You: A Workshop on Etiquette While Navigating Web Spaces"</i>

9:15am~12:00pm

SALON C

~~STEP PROFESSIONAL STAFF DEVELOPMENT~~

*"Developing a Successful Science & Technology
 Entry Program (STEP)"*

STEP Project Administrators

CONFERENCE SCHEDULE

Saturday, March 26th (continued)

9:15am~10:45am

JUDGES' MEETING FOR STUDENT RESEARCH POSTER COMPETITION

State Room

STUDENT CONCURRENT WORKSHOP SESSIONS

10:30am~11:45am

BALLROOM SALONS

PRESENTERS	ROOMS	WORKSHOP TITLES
Gwendolyn Munn	Salon A	<i>"Work Your Plan and Plan Your Work"</i>
Angela S. Dixon Andrea Ralph Cheryl Regal Dr. Betty Shadrick	Salon B	<i>"The Power of Positive Thought: Change Your Thoughts, Transform Your Life"</i>
Dr. Gladys Palma de Schrynemakers Dr. David Cohen	Albany/Colonie	<i>"The Abstract: The Key that Opens the Scientific Paper"</i>
Annette Toms	Schenectady/ Troy	<i>"The SALAD Bowl"</i>

12:00pm~1:15pm

BUFFET LUNCH

Salons DEFGH

1:30pm~2:30pm

STUDENT RESEARCH POSTER COMPETITION

Student Presenters Setup

Empire Room

1:30pm~2:00pm

COLLEGE FAIR SETUP

Salons A and B

CONFERENCE SCHEDULE

Saturday, March 26th (continued)

STUDENT CONCURRENT WORKSHOP SESSIONS

1:15pm~2:15pm

BALLROOM SALONS

PRESENTERS	ROOMS	WORKSHOP TITLES
Nicole Jones Renee Mapp	Salon C	<i>"Bullying and Peer-Pressure"</i>
Dr. Kathleen Fowler Stanley R. Huddy	Albany/Colonie	<i>"Mythical Scientists and Imaginary Mathematicians"</i>
Ahsan Ali	Schenectady/ Troy	<i>"Time Management and Setting SMART Goals"</i>

2:15pm~4:00pm

4TH ANNUAL STEP COLLEGE FAIR
Salons A and B

2:30pm~5:00pm

STUDENT RESEARCH POSTER COMPETITION
Empire Room

The Student Research Poster Competition will be open to the public at 4:00pm.

STUDENT CONCURRENT WORKSHOP SESSIONS

2:30pm~3:30pm

BALLROOM SALONS

PRESENTERS	ROOMS	WORKSHOP TITLES
Thelma J. Uter Wayne T. Uter	Salon C	<i>"Know Your Learning Brain"</i>
Dr. Kay Clanton	Albany/Colonie	<i>"College Prep: An Introduction to the College Entrance Process"</i>
Capital Region Undergraduates	Schenectady/ Troy	<i>"The All of College: Reality Check" Roundtable Discussion with current undergraduates</i>

CONFERENCE SCHEDULE

Saturday, March 26th (continued)

6:30pm~8:30pm

CELEBRATORY DINNER & KEYNOTE ADDRESS

Ballroom Salons

KEYNOTE ADDRESS

Dr. Alain E. Kaloyeros

9:15pm~12:00am

PARTY

Empire Room

GAMES

Albany/Colonie

Schenectady/Troy

Sunday, March 27th

8:00am~9:30am

BREAKFAST

Salons DEFGH

9:00am~10:15am

CLOSING PLENARY SESSION

Salons DEFGH

Student Research Poster Competition Awards Ceremony

Slide Show

Closing Remarks

10:30am~11:30am

CHECK-OUT AND DEPARTURE

Hotel Lobby

PARTICIPATING INSTITUTIONS & ORGANIZATIONS

STEP Conference 2011

Albany District Links	Monroe Community College
Albany Medical College	New York City College of Osteopathic Medicine
Bioscrip, Inc.	New York City College of Technology
Black Dimension In Art, Inc.	New York Power Authority
Borough of Manhattan Community College	New York State Education Department
Bronx Community College	New York University
City of Buffalo Police Department	New York University School of Medicine
Clarkson University	Performance Improvement (PI) Resources
Cleveland Community College—Shelby, NC	Pratt Institute
College of Staten Island	Queens College
Columbia University	Queensborough Community College
Development Dynamics, Inc.	Rensselaer Polytechnic Institute
Farmingdale State College	Rochester Institute of Technology
Fordham University	St. John's University
Fulton Montgomery Community College	Stony Brook University
Hofstra University	Suffolk County Community College
Hostos Community College	SUNY Albany
Power of Prep	SUNY Buffalo
Iona College	SUNY Buffalo Biomedical Program
Ithaca College	SUNY College at Old Westbury
Kingsborough Community College	SUNY Downstate Medical Center
LeMoyne College	SUNY Potsdam
Long Island University	Syracuse University
Manhattanville College	Technology Users Interface, Inc.
Medgar Evers College	Total Events, LLC
Medgar Evers College Jackie Robinson Center	Totally "You" -nique Educational Consultants
Mercy College	Unique Photographic Studio
Mohawk Valley Community College	Union College

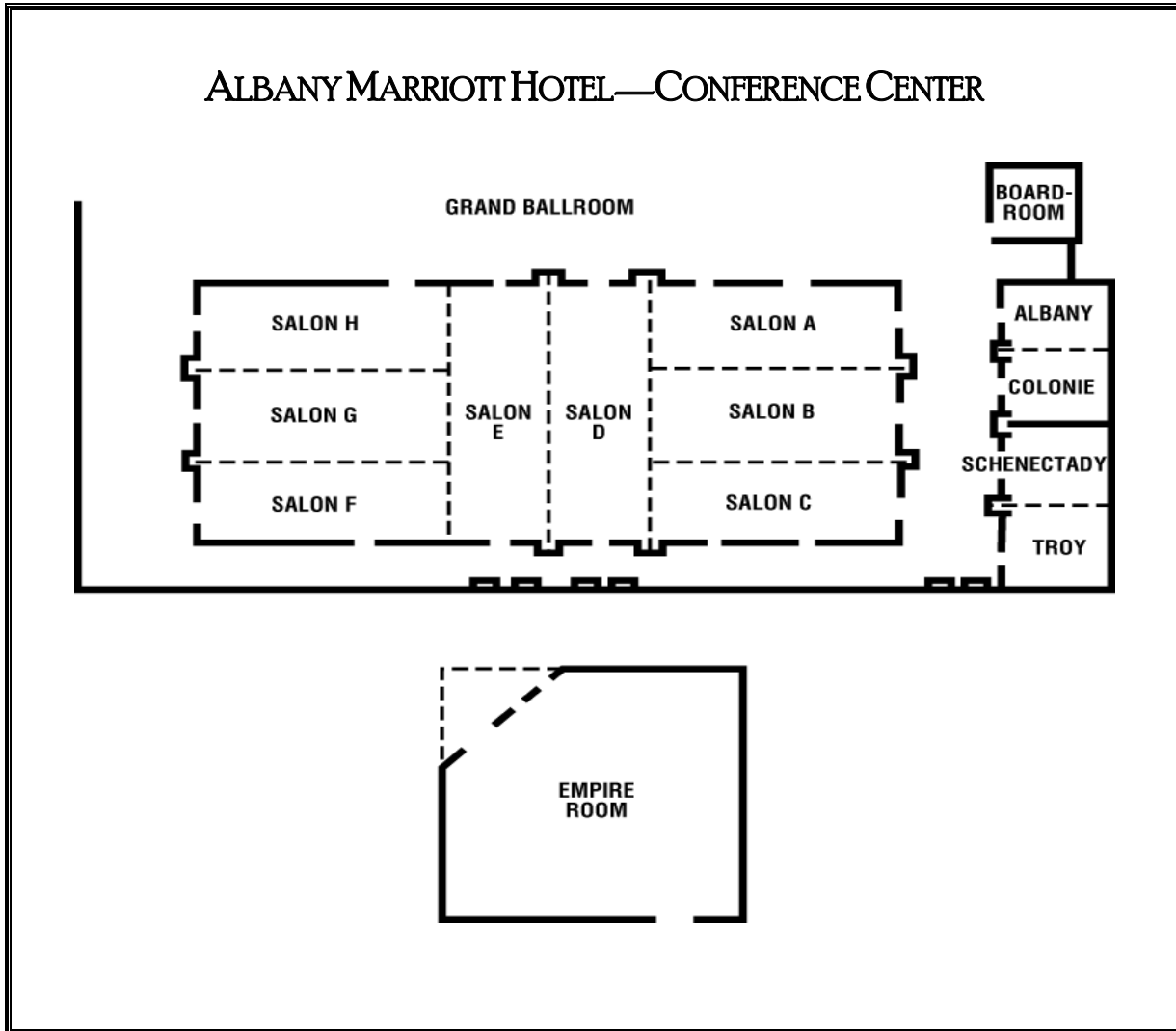
COLLEGE FAIR PARTICIPANTS

STEP Conference 2011

INSTITUTIONS	REPRESENTATIVES
CORNELL UNIVERSITY	William E. Horning—Director, New York State Opportunity Programs
FORDHAM UNIVERSITY	Mark K. Ciolli—Assistant Director of Admissions
FULTON MONTGOMERY COMMUNITY COLLEGE	Kathie LaBarge—Counselor, TRIO Upward Bound Program
LONG ISLAND UNIVERSITY—BROOKLYN CAMPUS	Krystalyn Cruz—Admissions Counselor
MANHATTANVILLE COLLEGE	William Wysowski or Christian Andrade—Admissions Counselors
MOHAWK VALLEY COMMUNITY COLLEGE	Phil Benson—Admissions Counselor
MONROE COMMUNITY COLLEGE	Donna Augustine—Director of STEP/Interim Coordinator for Service Learning
NEW YORK INSTITUTE OF TECHNOLOGY	Linda Spangler—Admissions Representative
RENSSELAER POLYTECHNIC INSTITUTE	Admissions Representative
ROCHESTER INSTITUTE OF TECHNOLOGY	Eulas Boyd—Assistant to the Senior Vice President
ST. JOHN'S UNIVERSITY	Christine Perrault—Assistant Director of Admissions
STONY BROOK UNIVERSITY	Dr. Christine Veloso—Assistant Director of CSTEP/STEP
SUNY COLLEGE AT OLD WESTBURY	Michael Cannetti—Admissions Counselor
SUNY ALBANY	Marcia Hoyte-King—Assistant Director of Admissions
SYRACUSE UNIVERSITY	Natalie Garza—Assistant Director of Admissions
UNION COLLEGE	Tori Mathieu—Admissions Office Senior Intern Allie Oliver—Admissions Office Senior Intern

CONFERENCE CENTER MAP

STEP Conference 2011



BOARD ROOM = STEP CONFERENCE HEADQUARTERS

WORKSHOP PRESENTERS SCHEDULE

Friday, March 25th

4:15pm~5:30pm

PRESENTER	ROOM	WORKSHOP TITLE
Dr. Tracy P. Johnson	Salon A	"Financial Literacy: Understanding and Knowing the Rules of the Game"
Tanaya Thomas-Edwards	Salon B	"The Student Guide to Developing a Professional Wardrobe"
Dr. Ashraf Ghaly	Salon C	"Driven and Want to Make a Positive Difference? Engineering is for You!"
Annette Toms	Schenectady/ Troy	"Roadmap to Success"

Saturday, March 26th

9:00am~10:15am

PRESENTER	ROOM	WORKSHOP TITLE
Pamala L. Brown-Grinion	Salon A	"Getting the Gig and Keeping It"
Huao Hwang	Salon B	"Acing Standardized Tests (PSAT, SAT, SAT II & ACT) with Planning, Preparation, and Persistency"
Thelma J. Uter Wayne T. Uter	Albany/Colonie	"Aerobics for the Learning Brain"
Tykeia N. Robinson Latoya D. Newton	Schenectady/ Troy	"The World Wide Web and What That Means For You: A Workshop on Etiquette While Navigating Web Spaces"

9:15am~12:00pm

PRESENTERS	ROOM	WORKSHOP TITLE
STEP Project Administrators	Salon C	<p>~~STEP Professional Staff Development~~</p> <p>"Developing a Successful Science & Technology Entry Program (STEP)"</p>

WORKSHOP PRESENTERS SCHEDULE

Saturday, March 26th

10:30am~11:45am

PRESENTER	ROOM	WORKSHOP TITLE
Gwendolyn Munn	Salon A	"Work Your Plan and Plan Your Work"
Angela S. Dixon Andrea Ralph Cheryl Regal Dr. Betty Shadrick	Salon B	"The Power of Positive Thought: Change Your Thoughts, Transform Your Life"
Dr. Gladys Palma de Schrynemakers Dr. David Cohen	Albany/Colonie	"The Abstract: The Key that Opens the Scientific Paper"
Annette Toms	Schenectady/ Troy	"The SALAD Bowl"

1:15pm~2:15pm

PRESENTER	ROOM	WORKSHOP TITLE
Nicole Jones Renee Mapp	Salon C	"Bullying and Peer-Pressure"
Dr. Kathleen Fowler Stanley R. Huddy	Albany/Colonie	"Mythical Scientists and Imaginary Mathematicians"
Ahsan Ali	Schenectady/ Troy	"Time Management and Setting SMART Goals"

2:30pm~3:30pm

PRESENTER	ROOM	WORKSHOP TITLE
Thelma J. Uter Wayne T. Uter	Salon C	"Know Your Learning Brain"
Dr. Kay Clanton	Albany/Colonie	"College Prep: An Introduction to the College Entrance Process"
Capital Region Undergraduates	Schenectady/ Troy	"The 411 of College: Reality Check" A Roundtable Discussion with Current Undergraduates

WORKSHOP PRESENTERS

STEP Conference 2⁰¹¹

STEP PROFESSIONAL STAFF DEVELOPMENT

Developing a Successful Science & Technology Entry Program (STEP)

STEP Project Administrators

Change is constant. Without it, a human or organization will stagnate or die. Change is usually difficult, often painful and frequently resisted. But in many situations, it's the organism's only hope for survival. Every machine is held together by its nuts and bolts. Without them, the machine would fall apart. That is also true of an organization. Its nuts and bolts are its basic, necessary elements. They are the parts that make the organization work.

This workshop will examine daily operational procedures that are an integral part of making a successful Science & Technology Entry Program (STEP). Participants should come prepared to discuss successful aspects of individual programs, along with areas in need of strengthening. Additionally, ideas for research opportunities and internships, creative hands-on workshops, information regarding STEP alumni, special events, parent advisory boards, etc. will be shared. Each program will have an opportunity to present each area, followed by a brief question and answer period. Each discussion area will be given 15 minutes.

STUDENT ROUNDTABLE DISCUSSION ON COLLEGE PREPARATION

Reality Check: The 411 of College

Capital Region Undergraduates

Is the thought of applying to college overwhelming? Have you wondered about what it takes to be successful in college? Do you have questions, desire a deeper understanding, or have anxiety about college? Then this is the workshop for you! Come ask questions of current undergraduates as they offer insight about:

- College application process
- Appropriate academic course load/class schedule
- Importance of proper academic advising
- Successful navigation of your college years
- Choosing a major
- Time management
- Support Services (i.e., HEOP, EOP, SSS, LSAMP, STEP, CSTEP, etc.)
- Organizations (i.e., academic, social, fraternities/sororities, etc.)
- Internships and Research Opportunities

WORKSHOP PRESENTERS

STEP Conference 2⁰11

Time Management and Setting SMART Goals

Ahsan Ali

Mohawk Valley Community College

A student's ability to effectively manage his/her time is essential, yet many students lack this important skill. This presentation is applicable to students in grades 7–12 and can be used to ensure academic success. As a STEP graduate and Biochemistry major I will provide experiential insight on ways to achieve academic success. Students should come prepared to ask questions, share experiences, and discuss any issues they may face with time management. Students will also have a chance to write SMART goals and use them as a visual aid during, and after, the workshop.

Getting the Gig and Keeping It

Pamala L. Brown-Grinion

Totally “You”-nique Educational Consultants

Participants of this workshop will learn methods to assist them with obtaining an internship and help them develop behaviors and habits that turn internships into full-time employment. Employers seek above average, high-achieving candidates for internships. Many people believe that internships solely exist for college students, but internship opportunities are also available at the high school level. A high school internship can open opportunities to the working world, allowing for skill development in working with others, interacting with superiors, attending meetings, and meeting deadlines. Internships also offer the chance to receive knowledge and training from experienced people who can serve as guides for career goals. This workshop will cover:

- Using social networking to gain opportunities
- How to land the perfect internship for you
- What to do when the internship ends
- Turning internships into interviews
- Tips for interns
- The benefits of interning
- Be all that you can “see”

Workshop Presenters Abstracts

WORKSHOP PRESENTERS

STEP Conference 2⁰¹¹

College Prep: An Introduction to the College Entrance Process

Dr. Kay B. Clanton

Development Dynamics, Inc.

This workshop helps 8th~11th grade students explore and understand the behaviors and educational practices that will positively impact college admittance. Through the use of written and non-written interactive techniques and group discussion, students will examine the following behaviors and activities as they relate to college admission:

- Working hard and maintaining good grades
- Being a “joiner”—i.e., sports and interest group involvement
- Tracking individual activities
- Using your guidance counselor
- Preparing for standardized tests (PSAT, SAT, and ACT)
- Exploring internships and job opportunities as they relate to community outreach and service
- Learning to manage finances
- Taking a personal inventory to get “a good college fit”
- The college application process, including the college essay
- How do I afford college?—finding scholarships, grants, loans, or paying your way

Mythical Scientists and Imaginary Mathematicians

Dr. Kathleen Fowler and Stanley R. Huddy

Clarkson University

Do your friends say you look like a scientist? Do you think your friends look like mathematicians? What makes an engineer look like an engineer? Explore what it really takes to become a scientist, mathematician, or engineer in this activity-based workshop that reveals all the classic stereotypes, misconceptions, and myths about who we are and what we do. Can you pass our “Spot the Scientist!” test? Students will examine a collage of pictures to see whether they can detect the real scientist. From cartoons to classic movies, and graphic art to your favorite television series, you will decide who makes the grade when it comes to depicting real scientists in visual media. Come see for yourself and discover how you can prepare for an exciting career in science and engineering!

WORKSHOP PRESENTERS

STEP Conference 2⁰11

Driven and Want to Make a Positive Difference? Engineering is For You!

Dr. Ashraf Ghaly
Union College

Engineers are naturally driven, motivated problems solvers who enjoy taking on challenges. They miss no opportunity to make a positive difference in their community and in the world. They search for innovative methods to solve complex problems, and work to care for the environment and preserve it. Engineers implement the latest technological advances and seek to do tasks in the most efficient way. They find ways to get around obstacles that hinder progress and advancement, and perform their job ethically and with the utmost regard for public safety. Engineering is a people-serving profession that strives to improve the quality of life for all humans, and it is knitted into the fabric of society. If you are concerned about the welfare of your community and desire to make a lasting effect, then engineering is for you!

Acing Standardized Tests (PSAT, SAT, SAT II & ACT) with Planning, Preparation & Persistency

Huao Hwang
Power of Prep

This workshop will present key strategies to help you take standardized tests. Strategies will include answering difficult math problems, reading boring passages, brainstorming points and examples for the essay, and improving your vocabulary. This workshop will also provide information on the PSAT, SAT, SAT II, and ACT—when you should take them, how the tests are the same/different, how they are scored, and what is being tested.

Financial Literacy: Understanding and Knowing the Rules of the Game

Dr. Tracy P. Johnson
Buffalo State College

Financial literacy is a life skill that aids college and workforce readiness. Understanding and creating positive financial habits and health has significant value now and for the future. It is imperative that students become financially literate before they enter the world of higher education. Each year numerous students leave college, and when asked why, most students will respond “because of financial reasons” (Noel Levitz, 2010). During this interactive workshop students will learn about budgeting, understanding credit, protecting personal finances, savings and investment, and the student financial aid process. Students will leave this workshop with a booklet that contains financial aid information, savings and investment, scholarship, and other financial literacy resources to equip them to better plan ahead, be persistent, and stay focused as they advance academically and personally.

WORKSHOP PRESENTERS

STEP Conference 2011

Bullying and Peer-Pressure

Nicole Jones and Renee Mapp

City of Buffalo Police Department and SUNY Buffalo Biomedical Program

Bullying and negative peer-pressure have progressed from playground antics to a cultural state of affairs. The bully, victim, and bystander are subject to feelings of fear, depression, powerlessness, guilt, disrespect, violence, and anger. The impact of bullying is seen in triplicate in any environment where it is allowed to thrive. Communities of young people have become hot beds for volatile, festering social situations, and this may be attributed to a lack of critical thinking and problem-solving techniques among those involved.

This presentation uses scholarly research and current affairs to demonstrate the negative effects of bullying on young Americans. Participants will examine research that suggests that young Americans can establish or re-establish a healthier mental, social, physical, and emotional environment in schools and communities. The presentation will show that negotiation, respect, and compassion gained through charity and leadership work can replace cultural attitudes regarding bullying and peer pressure.

Work You Plan and Plan Your Work

Gwendolyn Munn

Bioscrip, Inc.

Are you going somewhere or orbiting around Pluto? Without a goal, your journey is unclear and you will not produce desired results. This workshop provides strategies for overcoming procrastination and avoiding the dangers of poor planning. Other strategies under discussion include the following:

- Examining the work habits of ants and incorporating their practices into your daily life
- Poor planning and procrastination, and the effects of stress on the body
- Setting realistic goals
- How to write time specific goals
- Principles for getting more things done

Participants can expect a lively exchange of ideas by utilizing spiritual, personal, and professional experiences to imagine the life you want to live. Never fear the space between your dreams and reality. If you can dream it and believe it, you can possess your desires.

WORKSHOP PRESENTERS

STEP Conference 2⁰11

The Power of Positive Thought: Change Your Thoughts, Transform Your Life

Cheryl Regal, Betty P. Shadrick, Angela Dixon, and Andrea Ralph

Albany District Links

Any successful accomplishment begins as a concept, and this concept is then actualized through purposeful work and concentration. This interactive workshop will help students create environments that empower them to achieve excellence, and help them to acquire the skills to use positive thought to shape and mold opportunities for success. By participating in this workshop participants will leave equipped with techniques for victorious living throughout their life journey. Topics addressed in this workshop include:

- Discussing the ways that positive thought transforms life.
- Relating strategies to improve one's thought life—writing a mission/vision statement, living a life above reproach, and understanding dimensions of a complete life.
- Standing up inside—stating your position with clarity while maintaining composure, tact, and civility.
- Living a decisional lifestyle—discussing a decisional model that fosters self-empowerment and constructive behavioral change.
- Developing a “think big” mentality.

The World Wide Web and What that Means for You: A Workshop on Etiquette While Navigating Web Spaces

Tykeia N. Robinson and Latoya D. Newton

Columbia University

Facebook, Twitter, email, social networking, and hypermedia have significantly changed the way the world communicates. Thanks to our friends at Google, within seconds strangers can access personal information and make judgments about character, personality, and potential. In other words, the streets are always watching. These days an appropriate, polished, professional web presence is as necessary as the right attire on interview day. It is essential that students be armed with the necessary knowledge, tools, and strategies to put their best faces forward in a digital world.

In this workshop two young, trendy professionals (STEP & CSTEP Alumnae working in public relations and higher education) will share rules and resources of personal branding and ways to effectively navigate and utilize web spaces. Students will learn the basic etiquette of online and cellular communication and the do's and don'ts of Twitter, Facebook, MySpace, etc.

WORKSHOP PRESENTERS

STEP Conference 2⁰11

The Abstract: The Key that Opens the Scientific Paper

Dr. Gladys Palma de Schrynemakers and Dr. David Cohen
Long Island University

Learning to write a scientific abstract with exactness and clarity can serve as a foundation for building critical thinking skills and proficiency in communicating scientific results with an economy of words. These skills are critical for students wishing to enter into the STEM fields.

Students attending this workshop will be presented with the basic requirements for preparing a well-organized, effective abstract having the following characteristics: (a) short and simple, seldom more than 250 to 275 words that summarize the problem and the results without including any details of the methodology or mentioning of previous work; (b) include the research objectives; (c) a short description of the methodology; and (d) a summary of the results and the major findings. The abstract must stand as a summary of the information in the paper (Houghton, 1975) and provide enough information for the readers to evaluate whether it is significant to their research for them to read the entire paper (American National Standards Institute, Inc., 1971). Students will be presented with examples of well prepared and poorly prepared abstracts, and be asked to assess each using the criteria set forth during the presentation.

The Student Guide to Developing a Professional Wardrobe

Tanaya Thomas-Edwards
Syracuse University

This workshop will introduce participants to the standards and importance of professional dress and ways to effectively express one's personality in professional environments. Participants will receive information on the seven key wardrobe pieces that an aspiring professional should own. The workshop will describe ways to coordinate, care for, and size seven key pieces, and address the ways that first impressions can have a lasting effect in the life of the young professional. Upon completion of the workshop students will have the necessary tools to stand out as professionals.

Roadmap to Success

Annette Toms
Cleveland Community College—Shelby, North Carolina

This interactive workshop will focus on setting and reaching the goals you have for yourself. Participants will have an opportunity to roadmap their goals for where they “plan to go.” Planning is only one part of the picture of success, and opening the door with the keys is the other. Participants will work to create the A-Z's of their own roadmap for success and create career portfolios.

WORKSHOP PRESENTERS

STEP Conference 2⁰11

The SALAD Bowl

Annette Toms

Cleveland Community College—Shelby, North Carolina

Let's eat salad!!!! This workshop will focus on a healthy mix of personal success, leadership, and effective goal setting. We will examine the toppings of academic achievement, student responsibility, leadership, and communication skills. This interactive workshop will allow students to create a salad of their own by using the ingredients that they choose for personal success.

"Aerobics" for the Learning Brain

Thelma J. Uter and Wayne T. Uter

Performance Improvement (PI) Resources

This workshop offers a series of exercises to enhance your ability to learn. A combination of Brain Gym[®], Tai Chi movements, meditation, NeuroLinguisticProgramming (NLP), and music is used to help reduce stress and improve concentration. As a result, you can become a better learner and maintain good health. If these exercises are practiced daily they can promote good health and a sharper mind for academic success.

Know Your Learning Brain

Thelma J. Uter and Wayne T. Uter

Performance Improvement (PI) Resources

A fun workshop that explores the ways in which your learning brain works, and helps you identify your preferred learning style. The brain-based techniques will enable participants to better learn and remember while enjoying the academic journey.

Key topics:

- How your learning brain works
- Using your 8 learning smarts
- Mind mapping information
- Using mnemonics to remember easily

This interactive workshop helps position students to become better learners and leaders as they journey to academic excellence and college preparation.

POSTER PRESENTATION JUDGES

STEP Conference 2011

JUDGES	AFFILIATIONS
Everton Barrett	Director of STEM Education—Borough of Manhattan Community College
Dr. Thomas Brennan	Professor, Chemistry Department & STEP Director—Bronx Community College
Dr. Sharon A. Bryant	Associate Professor, Decker School of Nursing & CSTEP Director—Binghamton University
Dr. Jeffrey Burnette	Lecturer, Economics Department—Rochester Institute of Technology
Dr. David Cohen	Professor in Biology and Dean of Richard L. Connolly College of Liberal Arts and Sciences—Long Island University
Christopher Copeland	Account Executive, Marketing & Economic Development—New York Power Authority
Dr. Fletcher Jones	Vice-President and Chief Technology Officer—Technology Users Interface, Inc.
Raysean Khalif	Doctoral Student, School of Education—Syracuse University
Jacqueline Lake-Sample	President—Black Dimension in Art, Inc.
Bobby N. Marsh	STEP Science Instructor—Pratt Institute
Owen Meyers	Senior College Laboratory Technician—Borough of Manhattan Community College
Dr. Aisha Morris	Research Associate, Department of Earth Sciences—Syracuse University
Gwendolyn Munn	Regional Account Manager—Bioscrip Inc.
Dr. Gladys Palma de Schrynemakers	Associate Provost—Long Island University
Manita Pavel	Lecturer, Science Department—Borough of Manhattan Community College
Dr. Joan Peterson	Associate Professor, Biological Sciences—Queensborough Community College
Dr. Beverly E. Pringle	Principal, Bioscience & Health Careers School at Franklin—Rochester, NY
Tykeia Robinson	IGERT Coordinator—Columbia University
Celia Rouse	Assistant STEP Coordinator—SUNY Albany
Dr. Shanti Rywkin	Professor, Science Department—Borough of Manhattan Community College
Annette Toms	TRIO—SSS Project Director, Cleveland Community College—Shelby, NC
Doris Waiters	Assistant, Higher Education Opportunity Program (HEOP)—New York State Education Department
Dr. David Waldman	Professor, Physics Department—Borough of Manhattan Community College
Kenneth Warden	Adjunct Professor, Education Guidance—Queens College

STUDENT POSTER PRESENTERS

BIOLOGICAL LIFE SCIENCES

STEP Conference 2011

Transcranial Magnetic Stimulation of Rodents

Emmanuel Abreu
SUNY College at Old Westbury

Using Carbon Dioxide as an Indicator for Glucose Levels in Different Food for Diabetics

College of Staten Island
Isaiah Baskins

How Caffeine Affects Heart Rate of Teenagers

Akiva Benbow, Myra Johnson, and Marius Zanou
Rensselaer Polytechnic Institute

How is Fluoridation Affecting Local Schools?

Cerrone Cunningham, Gedielem Girma, and Khalil Stewart
Rensselaer Polytechnic Institute

The Emperor's New Clothes: Genes Involved in Molting, and Their Roles in Non-Ecdysozoan Phyla

Andrew Davalos and Andrea Monge
Queensborough Community College

The Effects of Catalase Pulse Chase on Regeneration in *Nematostella vectensis*

Jasmin Feliciano
Suffolk Community College

Where's the Body: A Study of the Decomposition of Liver and Muscle Tissues from Animals in Northern New York

Cassandra Griffin, Rashelle Drake, and Brooke Lewis
Clarkson University

Which Soaps Kill Best?

Dahlia Hatab, Roba Abdelrahman, and Farjana Akhtar
Kingsborough Community College

How Exposure to Different Environments Affects the Growth of Tumors in Plants

Rina Hernandez
New York College of Osteopathic Medicine

Determining Current Levels of Ozone Layer on Staten Island Using Water Samples

Shreya Jain
College of Staten Island

STUDENT POSTER PRESENTERS

BIOLOGICAL LIFE SCIENCES

STEP Conference 2011

Effects of Wave Length of Light on Plant Growth

Alissa Jarvis and Alexandria Clarke
Pratt Institute

A Comprehensive Analysis of the Familiarity of Repetitive Behaviors in Autism

Asa Jordan
Mercy College

Exercise!! The Body's Natural Defense Against Depression

Taylor Keith and Xiomara Francis
Albany Medical College

Biological, Chemical, and Physical Properties of Urban Storm Water Runoff at a Community College in Bayside, New York

Antonietta Lope and Angelica Rosero
Queensborough Community College

Ethylene Glycol Inhibits Regeneration in *Girardia dorocephala*

Jade Maak and Mei Chan
Borough of Manhattan Community College

An Investigation of the Chemiluminescence Properties of Luminol and Fluorescein in the Detection of Blood

Joshua Millings
Suffolk County Community College

Friend or Foe: Measuring Nutrients in Stream and Tap Water

Christopher Munroe, Lauren Henderson, and Adrianna Austin
Union College

The Negative Effects of Genetically Modified Crops in Humans and Animals

Joshua Nickerson
Hofstra University

The Success in Germination of *Centaurea stoebe* and *Centaurea nigrescens*

Johana Pena
Suffolk County Community College

Antibiotic Properties of Common Fruits and Vegetables

Slimane Rabout and Mouramani Kaba
New York City College of Technology

STUDENT POSTER PRESENTERS

BIOLOGICAL LIFE SCIENCES

STEP Conference 2011

The Effects of Car Fluids on Grass Growth

Sasha Richards
Kingsborough Community College

The Effects of Different Concentrations of Rock Salt Solution on Plant Growth

Abigail Rois and Tien Troung
Medgar Evers College

Think Before You Drink

Hadjer Sahraoui and Asmae Aitnajim
Syracuse University

What's the Benefit of Consuming Garlic?

Fateemah Saleem, Anisah Baaith-Mercado, Roiqueita Johns, and Nijah Rambo
Monroe Community College

Crude, Crude World

Jeffrey Spring, Matthew Schleich, Suleiman Noor, and Syed Hussnain
Union College

Spices and Inhibition of Bacterial Growth

Alicia Thompson, Cheyenne Thompson, and Lanney Laffin
SUNY Potsdam

Why Blacks Dominate Sports

Alexandria Walters, Simone Arrington, and Jasmin Butler
Albany Medical College

Electricity's Effect on Plants

Corey Winney and Nicole Ruiz
LeMoyne College

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Transcranial Magnetic Stimulation of Rodents

Emmanuel Abreu

SUNY College at Old Westbury

Transcranial Magnetic Stimulation (TMS) targets magnetic pulses at specific brain regions associated with neurological disorders. Although the first commercial TMS units have been introduced, they produce side effects that include headaches and epileptic attacks. As a result, further TMS study in animal models is required. To this end, a 500-turn coil with a 1-cm inner diameter that is capable of producing a 1-T magnetic field was constructed of fine-gauge copper wire and energized with 100-Hz electrical current. A mouse was restrained and the coil was held 1 cm from the skull for 10 minutes. Four trials were conducted—two with an energized coil and two with shams. The behavior of the mouse was observed and coded on a ten element chart before and after each trial. Before exposure, the mouse was very active, very alert, and slightly aggressive. Following exposure, the mouse exhibited considerable hind-limb twitching, but was less active and more aggressive.

Using Carbon Dioxide as an Indicator for Glucose Levels in Different Food for Diabetics

College of Staten Island

Isaiah Baskins

The hallmark of diabetes is high blood glucose levels, diabetic neuropathy, and retinopathy. Insulin is a key hormone in regulating glucose levels in the blood. Type 1 diabetes results from a lack of insulin secretion from the pancreas, and Type 2 Diabetes results from a decreased sensitivity to insulin in target tissue. Diabetics can monitor their diet to control glucose levels. In this experiment, we use carbon dioxide through the process of fermentation to measure how much glucose is in different foods. By measuring carbon dioxide through different food and juices, diabetics can avoid certain foods that are high in glucose. This experiment proved that foods that contained simple sugars such as glucose and fructose produced higher levels of carbon dioxide.

How Caffeine Affects Heart Rate of Teenagers

Akiva Benbow, Myra Johnson, and Marius Zanou

Rensselaer Polytechnic Institute

This project seeks to find the affect that caffeine has on the heart rate of teenagers. In America, 90% of youth and teens consume caffeine each day. Our experiment involves giving at least ten teenagers, ages 14 to 16, a caffeinated beverage to drink, and then monitoring whether their heart rate has increased or decreased. Their heart rates will be checked at 15 minute intervals to determine the effect that caffeine has on their heart rate. We hypothesize that after 15 minutes the heart rates of the participants will increase by 15- 25 beats per minute. Some caffeinated beverages have been shown to increase the chance of heart attacks and increase neuron firings in the brain, among other effects. This study will help to increase teen awareness regarding the effects of caffeine on their hearts.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

How is Fluoridation Affecting Local Schools?

Cerrone Cunningham and Gedielem Girma:
Rensselaer Polytechnic Institute

Water fluoridation is the controlled addition of fluoride into a community's drinking water supply. Fluoride has been added to water in the United States since the 1940s to help prevent tooth decay (mainly in children under 8 years old). According to the Center for Disease Control Prevention, too much fluoride in the water supply can lead to problems like fluorosis in children between 12-15 years old. Fluorosis has become more common since the 1980's. The prolonged, high intake of fluoride can increase the risk of brittle bones and crippling bone abnormalities. We tested fluoride levels in our surrounding schools and compared them to New York State safety level requirements of 0.7 to 1.2 parts per million (0.7 to 1.2 milligrams per liter of water). We expect to find that fluoride levels in schools will meet New York State requirements.

The Emperor's New Clothes: Genes Involved in Molting, and Their Roles in Non-Ecdysozoan Phyla

Andrew Davalos and Andrea Monge
Queensborough Community College

Ecdysozoa form an entirely new cuticle beneath a pre-existing one, shed the old cuticle, expands, and then hardens the new one. Growth would be otherwise impossible. The group contains the familiar Arthropods (animals with jointed appendages and exoskeletons, such as insects), Nematodes, and the more obscure phyla. The group was first proposed using 18S ribosomal ribonucleic acid (RNA) gene sequences from the mitochondrion. Deoxyribonucleic acid (DNA) sequencing of hundreds, if not thousands, of genes and organisms has progressed infinitely far since that time, and almost all of that sequence information is freely available on the Genbank server, making possible studies on selected gene families and organisms. While the role of various genes in ecdysis (shedding of the cuticle) has been characterized in the phyla within Ecdysozoa, many of these genes also exist in other phyla. Our study looks at related groups of these genes in attempts to hypothesize gene evolutionary patterns.

The Effects of Catalase Pulse Chase on Regeneration in Nematostella vectensis

Jasmin Feliciano
Suffolk Community College

Nematostella vectensis is a rising starlet sea anemone that is most commonly found in the Eastern United States. This project seeks to find the effects of catalase on regeneration in cnidarians *Nematostella vectensis*. Based on previous studies, I hypothesize that catalase will break down hydrogen peroxide and promote regeneration after it has been inhibited. *N. vectensis* was exposed to lipoic acid, a proven inhibitor of regeneration. Preliminary experiments have proven that hydrogen peroxide can be utilized to "rescue" *N. vectensis*. After exposure to lipoic acid and hydrogen peroxide, pulse chase will be performed using a serial dilution of catalase. Results include the continued inhibitory effects of the lipoic acid on its regeneration. These findings will lead to new methods of limiting abnormal growth and provide a new tool to battle cancer.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Where's the Body: A Study of the Decomposition of Liver and Muscle Tissues from Animals in Northern New York

Cassandra Griffin, Rashelle Drake, and Brooke Lewis
Clarkson University

Decomposing animal bodies is common in rural New York. Do species of large animals decay in nature at the same rate? Do different organs in animals decompose at similar rates? Our hypothesis is that farm animals decompose more slowly than deer, and that liver tissue, which has a lower density, decays faster than muscle tissue.

Fresh muscle and liver tissue from cows, pigs, and deer were cut into six cubes. The mass, volume, and density of the samples were measured. Six bins were filled with moist soil for decomposition. One cube of each tissue was placed under the soil surface. At two weeks bacteria and fungi were observed. After four weeks three bins were harvested. The average density was 1.08 g/cm³ for liver, and 1.326 g/cm³ for muscle. On average, liver tissue lost 38.3% mass. Cow and pig muscle lost 20.9 % mass, while deer muscle lost an average of 60% mass. The remaining samples will be tested and processed in the same manner at eight weeks.

Which Soaps Kill Best?

Dahlia Hatab, Roba Abdelrahman, and Farjana Akhtar
Kingsborough Community College

Millions of bacteria live on bathroom doorknobs at home and at school. Antibacterial soap claims that it has the ability to kill 99.9% of these bacteria. Our hypothesis is that if we use antibacterial soap on bacteria from bathroom doorknobs, more bacteria will be killed than with regular soap. We swabbed doorknobs in our homes and at school, and transferred the samples to nutrient agar Petri dishes. We cultured the bacteria for several days until colonies appeared. We then used the oil-immersion lens of a compound microscope to identify the species and spread colonies on separate dishes. Two soap-soaked paper disks were placed on the agar of each dish. One disk was soaked in antibacterial soap, the other in regular soap. Our observations showed that the disks with the antibacterial soap were more effective at killing bacteria, as they had a larger diameter of bacteria-free agar than regular soap disks.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

How Exposure to Different Environments Affects the Growth of Tumors in Plants

Rina Hernandez

New York College of Osteopathic Medicine

The purpose of this project is to compare plants that are infected with *Agrobacterium tumefaciens* living under normal environmental conditions (such as proper sunlight, sufficient water, etc.), with plants (also infected with *Agrobacterium tumefaciens*) living in an inadequate environment. The results would be based on whether the environment played a vital role in the developmental success and overall spread of tumors on sunflower plants. This project required planting sunflower seeds and giving them proper care for approximately four weeks; when mature enough, plants were inoculated with *Agrobacterium tumefaciens* and the bacteria was allowed to spread. Photographs were taken of the plants on a weekly basis to demonstrate plant development/spread of tumors.

After completing this project we assume that we will notice that sunflowers that grow in insufficient sunlight and without the proper amount of water will have a more rapid spread of tumor, as opposed to sunflowers growing in proper conditions.

Determining Current Levels of Ozone Layer on Staten Island Using Water Samples

Shreya Jain

College of Staten Island

The quality of our environment is a major factor in determining the health and longevity of ozone conditions. Staten Island, New York has been historically challenged by the vast chronological development of industrialization and by the development of the local dump and. These environmental challenges have led to repeat, chronic contamination, and have compromised local ozone levels. I will be using a water sample ozone measurement system to analyze local water samples in each area code of Staten Island. I predict that area codes on the island that are closer to industrialized areas and the local dump will present with the highest levels of ozone.

Effects of Wave Length of Light on Plant Growth

Alissa Jarvis and Alexandria Clarke

Pratt Institute

Do different colors of light affect plant growth? Will plants grow better in soil under certain colors of lights? Will changing light color produce a better crop? The purpose of this project is to find ways that different light colors effect different plants while they grow. This experiment will examine plants growing under different colors of light (blue, red, green, sunlight, etc.). The growth of each plant over a certain period of time will be recorded, and as a control, plants will be placed in the same environment to find accurate growth measurements.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

A Comprehensive Analysis of the Familiarity of Repetitive Behaviors in Autism

Asa Jordan
Mercy College

This study examined the relationship between the repetitive behaviors of children with autism and the obsessive-compulsive traits in their parents and siblings. Studies have shown that relatives of children with autism may exhibit a variety of symptoms and traits that are phenomenologically related to autism. Repetitive behaviors are a hallmark feature of autism and are closely related to obsessive-compulsive traits. Few studies have correlated repetitive behaviors in children with autism to obsessive-compulsive traits in their parents and sibling, yet these behaviors have been found to be familial among affected cases.

Exercise!! The Body's Natural Defense Against Depression

Taylor Keith and Xiomara Francis
Albany Medical College

Depression affects approximately 15 million people in the United States, and 20% of teenagers experience depression before they reach adulthood. Symptoms of depression can be eased with psychiatric counseling and medication, however, exercise has also been shown to reduce symptoms. Exercise can help increase endorphins and reduce immune system chemicals that can worsen depression. Exercise can also increase a person's confidence to help them cope with social situations. A recent study found that depressed people who exercise are more likely to have reduced symptoms of depression. To confirm these results, we evaluated six adolescents suffering from depression and monitored them as they exercised for three days. These adolescents were monitored again while they refrained from exercise for another three days. After surveying the participants we found that depression symptoms returned after three days of not exercising, confirming the results found in the previous study.

Biological, Chemical, and Physical Properties of Urban Storm Water Runoff at a Community College in Bayside, New York

Antonietta Lope and Angelica Rosero
Queensborough Community College

Urban areas are often prone to flooding due to a high percentage of paved surfaces and reduced amounts of vegetation. Water that collects on paved surfaces can eventually end up in natural bodies of water and carry contaminants that contribute to the degradation of water quality. Common contaminants in urban runoff include heavy metals, oils, and grease from automobile traffic; chlorides from salts applied to roads to melt snow and ice; and, other suspended solids from street dust and eroded sediments.

In this research we examined the quality of storm water that accumulated in two parking lots at Queensborough Community College during heavy precipitation. The following parameters were measured: 1) *biological*—detection of E. coli and other bacteria; 2) *physical*—temperature and turbidity; and 3) *chemical*—nitrogen, phosphorus, pH, and other elements. This data will be used to compare the quality of storm water runoff before and after a remediation plan is put into place.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Ethylene Glycol Inhibits Regeneration in Girardia dorocephala

Jade Maak and Mei Chan

Borough of Manhattan Community College

Planarians (Platyhelminthes) are noted for their ability to regenerate. Transected organisms are able to regenerate an entire new organism from only a few stem cells known as neoblasts. Neoblasts congregate at wound regions and form a regenerative tissue called blastema. We discovered that exposure to ethylene glycol (EG), the main component in antifreeze and a common pollutant, inhibits regeneration in *Girardia* (formerly *Dugesia*) *dorocephala*. We cultured organisms in EG (40 $\mu\text{g}/\text{mL}$ or 80 $\mu\text{g}/\text{mL}$) and pond water. To assess the effect of EG on neoblasts, organisms were stained with bromodeoxyuridine and the mitotic stages and numbers of neoblasts were evaluated at the wound sites. At both concentrations, organisms in EG regenerated more slowly than controls (pond water alone) and also exhibited developmental abnormalities such as reduced photoreceptors. Organisms in higher concentrations of EG regenerated more slowly than those in lower concentrations, indicating a dose-dependent effect.

An Investigation of the Chemiluminescence Properties of Luminol and Fluorescein in the Detection of Blood

Joshua Millings

Suffolk County Community College

Forensic scientists use chemiluminescent chemicals such as luminol and fluorescein as a presumptive test for detecting blood at crime scenes. This experiment verified that fluorescein is more effective than luminol in detecting blood. Synthetic blood, luminol, fluorescein, and bleach were used, and a comparison was made of each chemical's ability to detect blood and its reaction to false positives. Synthetic blood was smeared on a surface, and luminol or fluorescein was later dropped on the surface to measure the duration of the resulting luminescent flash. Flash times were compared. Both luminol and fluorescein detected the blood, and their flash times were approximately equal; however, luminol gave a false positive in the presence of bleach. Overall, fluorescein was more effective and reliable in detecting blood than luminol. These results can help forensic scientists select chemicals for detecting blood at crime scenes.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Friend or Foe: Measuring Nutrients in Stream and Tap Water

Christopher Munroe, Lauren Henderson, and Adrianna Austin
Union College

The purpose of this project is to determine whether the levels of nitrates, phosphates, and sulfates present in samples of tap water meet the criteria established by the Environmental Protection Agency (EPA) and the city of Schenectady, New York. Stream water samples were tested to gauge how the immediate surroundings of the stream impacted the levels of nutrients. Four water samples were taken from different locations along the stream and three tap water samples were taken from different homes for comparison. The levels of nutrients present in each sample were measured using a colorimeter.

The measurements taken confirmed our hypothesis that the levels of nutrients found in the stream were highest near a cultivated garden. All of the tap water samples were below the maximum contaminant level established by the EPA. However, the nitrate levels found in Schenectady tap water were higher than the values reported by the city of Schenectady.

The Negative Effects of Genetically Modified Crops in Humans and Animals

Joshua Nickerson
Hofstra University

The purpose of this research is to show that consuming and handling genetically modified (GM) crops is detrimental to the health of humans and animals. The Bt pesticide genetically implanted into soy and corn crops has been shown to produce dangerously high levels of toxins, and when fed to laboratory rats they caused a decrease in fertility and altered proper immune system functioning. Studies in India have shown that after grazing on GM cotton plants, cattle became ill and died days later, and farmers handling GM cotton experienced an increase in allergic and asthmatic symptoms. The implications of extremely few human trials are that GM crops have not been proven to be safe for consumption, and should not be used for food by humans or animals.

The Success in Germination of *Centaurea stoebe* and *Centaurea nigrescens*

Johana Pena
Suffolk County Community College

This study looked at the growth of two highly invasive European species in the United States—*Centaurea stoebe* and *Centaurea nigrescens*—and demonstrated which of the two has a greater germination percentage and how it can be altered. Invasive weeds were tested to determine those that are noxious to the environment after they have been stressed. First, 20 seeds of *C. stoebe* and *C. nigrescens* were separated into four petri dishes. When the seeds grew large enough, they were transferred into biodegradable trays. After the seeds exceeded 3cm, they were transferred into bigger cups. The plants were watered once per day until the soil was saturated; this was performed 5 days per week for 10 weeks. The height of each plant was recorded in centimeters (cm). It was hypothesized that *C. nigrescens* will outperform the *C. stoebe* under optimum conditions, and based on the conditions of the seeds, *C. stoebe* will outperform *C. nigrescens* under stress.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Antibiotic Properties of Common Fruits and Vegetables

Slimane Rabout and Mouramani Kaba
New York City College of Technology

The benefits of a well-balanced diet include lower blood pressure, reduced risk from diabetes, improved cardiac function, and overall healthy living. Fruits and vegetables are integral components of a balanced diet and provide important minerals, vitamins, proteins, and antioxidants. On a day-to-day basis we are plagued with harmful bacteria that our immune system usually keeps from harming us. Besides strengthening the immune system, what are the antibiotic properties of some common fruits and vegetables? This project will examine the antibiotic properties of a few common fruits and vegetables. We will assess the inhibition of the growth bacteria when *Escherichia coli*, *Pseudomonas aeruginosa*, *Staphylococcus aureus*, and *Bacillus subtilis* are exposed to extracts of selected fruits and vegetables. At the conclusion of this project we will obtain information on the ability of fruits and vegetables to directly prevent microbial growth.

The Effects of Car Fluids on Grass Growth

Sasha Richards
Kingsborough Community College

There is not much plant growth in the community where I live; there is mostly grass that looks unhealthy. I believe that fluids leaking from cars are preventing the grass from properly growing. I hypothesize that grass will not grow well if antifreeze or motor oil is added. Four grass seeds were sprouted in three separate cups of potting soil, watered everyday with four tablespoons of water, and placed on the windowsill. Two teaspoons of motor oil were added to one cup, two teaspoons of antifreeze to another, and the third was left alone (control). The length of the grass blades were measured once per week. The control grass grew an average of 6.3 cm. The grass with motor oil was shorter, and the grass with antifreeze died. The hypothesis is supported, but more data will be collected.

The Effects of Different Concentrations of Rock Salt Solution on Plant Growth

Abigail Rois and Tien Troung
Medgar Evers College

This project was designed to test the effects of different concentrations of salt solution on plant growth. Roads are heavily salted during the winter, creating an environmental problem. High concentrations of salt solution can cause damage to plant cells. This investigation seeks to determine which concentration of salt solution has the worst effect on plants. Four groups of plants were used for the experiment. The first group of plants were watered with distilled water and observed for 14 days. The second, third, and fourth groups were watered with salt solution of different concentrations and observed for 14 days. The average height for each group was calculated. The salt solution with the highest concentration caused the greatest harm to the plants. The drought like environment created by the salt caused the stomates to close and interfere with photosynthesis by blocking carbon dioxide.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Think Before You Drink

Hadjer Sahraoui and Asmae Aitnajim
Syracuse University

Most people drink beverages throughout the day without a second thought, but they may not know that their actions are detrimental to their teeth. The Minnesota Dental Association states that sugar in drinks combines with bacteria in the mouth to form an acid. Diet or sugar-free drinks contain their own acid, and this further contributes to enamel loss. The Association also states that using fluoride toothpaste protects teeth against these “acid attacks.” Our experiment will determine which beverage causes the most tooth decay and the role of fluoride toothpaste in preventing such damage.

Our study consists of submerging two teeth in eight different beverages for four weeks. One tooth in each drink will be brushed daily with fluoride toothpaste. We will record the mass of each tooth every week. At the end of our study we will calculate the percentage of tooth enamel loss to determine which beverage contributes most to tooth decay.

What's the Benefit of Consuming Garlic?

Fateemah Saleem, Anisah Baaith-Mercado, Roiqueita Johns, and Nijah Rambo
Monroe Community College

This project focused on the success of garlic in killing, or preventing, the growth of bacteria (*E. coli*). This particular topic is important because garlic is rich in the antioxidants that help destroy free radicals. This experiment required three petri dishes with blood agar (labeled A, B, and C), milk, *E. coli*, and juice from fresh garlic. All three petri dishes contained equal amounts of milk. Petri dish B also received *E. coli*, and dish C received garlic juice and *E. coli*. The growth of bacteria colonies was measured over a five day span. Tables and graphs were used to analyze the data collected. Results showed that once garlic was introduced into the petri dishes, the growth of bacteria did not take place. Based on experimental findings, garlic has the ability to fight *E. coli* bacteria.

Crude, Crude World

Jeffrey Spring, Matthew Schleich, Suleiman Noor, and Syed Hussnain
Union College

The project sought to examine the effects of an oil spill on aquatic organisms. The secondary purpose of the project was to raise awareness about ecosystem devastation caused by the oil spill in the Gulf of Mexico. We hypothesized that the larger the concentration of oil, the lower the survival rates of the zooplankton. The experiment involved recreating oil spill effects on marine ecosystems by exposing *Daphnia Magna* zooplankton, which is close to the bottom of an aquatic food web, to different oil concentrations added to the water in which they live. All trials of the experiment (control and four different oil concentrations) were completed in a controlled environment. We observed the *Daphnia* over a period of 24 hours and recorded their survival rate. The observations and measurements supported our hypothesis that the larger the oil concentration, the lower the survival of *Daphnia*.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Spices and Inhibition of Bacterial Growth

Alicia Thompson and Cheyenne Thompson
SUNY Potsdam

What is the value of spices? Household spices help to inhibit bacterial growth. Traditional medicine for the St. Regis Mohawk Tribe has utilized sage to treat mild illness. Rationale engages the principle that spices have been used for centuries to help preserve food. Spices have a variety of compounds. A household spice might not be sterile and may contain many compounds. We seek to find whether there is a bacterial growth effect on spices used at home. A small amount of a household spice will be added to the agar at 40° Celsius using an antiseptic technique. If one gram of spice is added to nutrient agar, it is believe that the result will be fewer bacterial colonies growing on that plate. We will also use aseptic technique to add bacteria. If the growth of colonies is reduced, our hypothesis will be supported.

Why Blacks Dominate Sports

Alexandria Walters, Simone Arrington, and Jasmin Butler
Albany Medical College

Running is a worldwide sport practiced in almost every country around the globe. The universality of running allows exceptional runners to come from a wide range of countries and racial groups; however, athletes of African descent lead the rankings. Our research efforts in finding the difference between an athletic person and an athlete lead us to the theory of genetic advantages in athletes of African descent. The data suggested that athletes and athletic people of African descent surpassed the times of all other participants in the study. Tests such as the 100-meter dash, which tests fast-twitch muscles, and the mile, which tests slow-twitch muscles, assess the capability of muscle fibers in sports performance. A review of literature and collected data will vindicate the theory of genetically advantaged athletes. The results imply that race is a contributing factor in an athlete's performance, and it influences future research in sports medicine.

Electricity's Effect on Plants

Corey Winney and Nicole Ruiz
LeMoyne College

Biology classes teach that photosynthesis requires an input of energy (usually the sun), which creates glucose for plant growth. We inquired about electricity's effect on plants growth. If the electrical effect is found to increase the growth rate in plants, it could be further developed to help diminish world hunger.

We set up two groups each of hydroponic and dirt containers, and a 12-volt current was applied to our electric subjects. Each container contained Sweet Basil seeds. Daily, we measured and recorded the tallest plant in the pod, the amount of rainfall, and high and low temperatures. Results show that electricity does affect the growth rate of plants. Electricity increases the germination process, but once sprouted, the electricity stunted the growth of the basil and eventually killed the plants. Further experimentation with the amount and timing of electricity could prove practical.

STUDENT POSTER PRESENTERS

HUMAN SERVICES

STEP Conference 2011

Waste(water) Treatment Electrolytic Reactor (WTER): A Novel Approach Combining MFC and MEC Technology – Creating a Self-Sustainable Wastewater Treatment Facility

Jordan Boucicaut
Hofstra University

Advancement in HIV Treatment

Tevon Eversley and Buthayna Sims
Medgar Evers College Jackie Robinson Center

The Study of Chelation as the Mechanism of Action of Ethylenediaminetetraacetic Acid (EDTA) and p-Aminosalicylic Acid (PAS) in the Treatment of Autism and Manganism

Dwyane George
SUNY College at Old Westbury

Climbing Stairs and Getting Healthy

Emilie Gonzalez and Lucila Lope
Queensborough Community College

Fresh H2O

Andrew Guyatte, Yashoda Gopi, Syeda Zahan, and Darnell Rollins
Union College

A Preliminary Study Examining the Effect of Increased Dietary Cholecalciferol on Mercury Excretion in One Donor Within the Autism Spectrum

Rachel Lalmansingh
SUNY College at Old Westbury

Schizophrenia

Kathlene Molina
Bronx Community College

HPV Awareness

Ana-Paula Morales-Allende and Aiya Aboubakr
New York University School of Medicine

How Do Sleep and Exercise Affect 10-Week Averages in Classrooms?

Server Mustafae and Austin Davis
Clarkson University

Diabetes: Raising Awareness Among Minority Students

Rashidi Nicholls, Jabari Nicholls, and Deaniquea Phillips
New York College of Osteopathic Medicine

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HUMAN SERVICES

STEP Conference 2011

Porphyrins in Photo Dynamic Therapy

Stacey Ortega and Natalie Leon
New York City College of Technology

Health Risks in an Overweight Society

Anaiz Reynoso and Travis Rivera
Manhattanville College

The Study of the Effect of Physiological Changes on Life Expectancy

Katherine Vera and Brittany Mohan
Farmingdale State College

Hemodialysis and African-Americans in the City of Buffalo

Ashley Wagstaff and Nkiru Ifedigbo
SUNY Buffalo Biomedical Program

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Waste(water) Treatment Electrolytic Reactor (WTER): A Novel Approach Combining MFC and MEC Technology—Creating a Self-Sustainable Wastewater Treatment Facility

Jordan Boucicaut
Hofstra University

By using novel devices known as Microbial Fuel Cells (MFC) and Microbial Electrolysis Cells (MEC), raw renewable electricity and hydrogen gas can be produced while treating wastewater in a wastewater treatment plant. Certain types of bacteria—known as exoelectrogens—that are found in wastewater can emit electrons to an external source while carrying out their life processes. An MFC harnesses this source of electricity, and by adding a minimal amount of power, hydrogen is evolved at the cathode of an MEC.

This research is conducted to propose a new design of raw electricity that is generated from MFC that will be able to power clean hydrogen production in an MEC in a wastewater treatment plant and produce a new design called the WTER. Wastewater was collected and used for the fuel cells that were manufactured at a lab scale. Raw electricity and hydrogen gas was produced from reactors and can be applied to real world situations.

Advancement in HIV Treatment

Tevon Eversley and Buthayna Sims
Medgar Evers College Jackie Robinson Center

Advancement in research for the treatment of the Human Immunodeficiency Virus (HIV) is relevant because this virus can lead to Acquired Immune Deficiency Syndrome (AIDS), a potentially life-threatening condition that has caused the death of millions over the years. AIDS related deaths have reached epidemic levels, with the rate increasing by 1.8 million people per year. This research focuses on advancements in the treatment of AIDS, brings forth awareness of the disease, and shows that there is progression and hope in the fight against HIV/AIDS.

Data will be obtained from the National Institute of Health (NIH), the Center for Disease Control (CDC), and health departments from five major U.S. cities such as New York City, Los Angeles, Atlanta, San Francisco, and Las Vegas. Scientific data from the 1980's through the present will be analyzed. We desire that the gathered information lead to education, show progress in treatment, bring about awareness, and teach precautionary measures. The research will show that there have been advancements in treatment, yet because there is no cure, measures must be taken to continue to prevent the HIV epidemic from becoming worse.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

The Study of Chelation as the Mechanism of Action of Ethylenediaminetetraacetic Acid (EDTA) and p-Aminosalicylic Acid (PAS) in the Treatment of Autism and Manganism

Dwyane George

SUNY College at Old Westbury

This research seeks to find a plausible chelatory agent that can bind manganese and mercury from the human body as a method of treatment for autism or manganism. The relevance of this research is the imminent need for a pharmaceutical drug that can chelate mercury and manganese. This study implemented spectrophotometric assays and cold vapor atomic absorption to determine the chelating properties of Ethylenediaminetetraacetic Acid (EDTA). Manganese (Mn^{+2}) containing solutions were exposed to EDTA or p-Aminosalicylic Acid (PAS), followed by an oxidation reaction that converts remaining free Mn^{+2} into permanganate ions (MnO_4^-). Data analysis involved spectrophotometrically comparing the controls of regular manganese absorbance measurements to the solutions containing chelators. The study suggests that PAS can be applied as a strong chelator of mercury and manganese; the greater implication of the findings is that PAS can be an apt candidate to treat manganism and autism.

Climbing Stairs and Getting Healthy

Emilie Gonzalez and Lucila Lope

Queensborough Community College

The purpose of this project is to determine the correlation between physical fitness and vital signs (blood pressure and heart rate) in a group of middle and high school students before and after exercise. It is hypothesized that physical exercise (escalating 50 steps and then repeating four times) will cause less of an increase in heart rate and blood pressure in students who exercise regularly than in those who do not. Students will be separated into fitness groups based on how much physical activity they perform each week. Their heart rates and blood pressure will be measured before and after climbing the steps. It is hypothesized that students who exercise regularly will show less of an increase in these vital signs after completing the activity. This project will demonstrate the benefits of regular exercise on one's general health.

Fresh H2O

Andrew Guyatte, Yashoda Gopi, Syeda Zahan, and Darnell Rollins

Union College

Clean water is essential for humans to survive and function. Almost 2 million people die from waterborne diseases of contaminated water supplies. An effective, environmentally friendly way to purify water is by using Solar Water Disinfection (SODIS), which is used in areas of Southeast Asia, Southern Africa, and Latin America. SODIS uses sunlight and clear Polyethylene terephthalate (PET) bottles (polyethylene terephthalate is a material that is often used for soft drink containers). The water is filled in transparent PET bottles and exposed to the sun for two days. The ultraviolet rays from the sun kill common viruses, waterborne bacteria, and parasites that are harmful to humans. Our results from the samples taken from Central Park, Mohawk River, and Jackson Gardens Creek show that the water was safer to drink, further proving that the SODIS method is effective. SODIS is an ideal method of providing safe drinking water for people in developing countries where other methods are not available.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

A Preliminary Study Examining the Effect of Increased Dietary Cholecalciferol on Mercury Excretion in One Donor Within the Autism Spectrum

Rachel Lalmansingh

SUNY College at Old Westbury

The problem under study is to examine whether increased ingestion of vitamin D3 (cholecalciferol) has a chelating effect on an autistic donor's mercury excretion levels. Monthly scheduled hair extractions were performed by donor's parents and analyzed using Cold Vapor Atomic Absorption. All chemicals used were of trace-metal grade that was attained from Fisher Scientific. Recent data has demonstrated a slight increase in DDI 99's excretion level after vitamin D3 intake was increased (by donor's parents) for approximately one month. These preliminary results suggest that vitamin D3 has chelating properties.

Schizophrenia

Kathlene Molina

Bronx Community College

Schizophrenia is a mental disorder that affects thousands of people across the world. The purpose of this project is to discover the causes, diagnosis, and treatments of schizophrenia. I will present a poster board explaining schizophrenia and pictures of the parts of the brain that are affected by schizophrenia. The PowerPoint presentation will have in depth information on schizophrenia and videos showing the symptoms of schizophrenia. This project will help people to understand the seriousness of schizophrenia and better understand why those who are diagnosed with this mental disorder act the way they do.

HPV Awareness

Ana-Paula Morales-Allende and Aiya Aboubakr

New York University School of Medicine

With approximately 20 million Americans infected with the Human Papillomavirus (HPV), and another 6 million people projected to become newly infected each year, HPV stands as the most common sexually transmitted disease in the United States. Although prevention methods range from available vaccinations to abstinence, the public's lack of knowledge does little to ameliorate the spread of the infection. The recent release of Gardasil—the vaccine that targets the four strands of HPV that are most responsible for cervical cancer and genital warts—has stirred controversy, as its target group knows little about its usage and effects. We distributed surveys that allowed for the evaluation of how well the general public understands HPV and its vaccine. The results demonstrated that high percentages of the community are misinformed. Proposals to restructure the community's understanding of the infection and vaccine aim at bringing the information to the people through poster boards, pamphlets, and internet sources.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

How Do Sleep and Exercise Affect 10-Week Averages in Classrooms?

Server Mustafae and Austin Davis
Clarkson University

Does “sleeping well” and “being active” affect a student's performance in school? We seek to determine whether the amount of sleep and exercise that a student gets affects his/her grade point average. Our hypothesis is that students who regularly receive larger amounts of sleep and exercise perform better in the classroom, and thus have higher grade point averages. During a 10-week time period we collected data from students in 6th-8th grade science classes. Participants were asked to record the amount of sleep they received each night and to complete a survey on how often they exercised or participated in physical activities during this time period. At the end of the ten weeks we collected their averages, applied statistics to the data, and analyzed the outcome.

Diabetes: Raising Awareness Among Minority Students

Rashidi Nicholls, Jabari Nicholls, and Deaniqua Phillips
New York College of Osteopathic Medicine

The purpose of this project is to increase the level of awareness and education of diabetes among a student population that is 100% minority. The overall goal is to bring awareness to this chronic medical condition that has an enormous impact on people of color. The project utilized a pretest, an educational/awareness component that included giving each student a blood glucose analyzer, and a post-test. This project assessed the levels of success during the three month period. The data collected from over 500 students confirmed the hypothesis that the vast majority of students are not aware of diabetes and its potential long-term health ramifications. These findings led the research team to believe that additional education is required to assist this population with understanding diabetes and the ways it can affect their lives.

Porphyryns in Photo Dynamic Therapy

Stacey Ortega and Natalie Leon
New York City College of Technology

Porphyryns are photosensitive macromolecules. The light absorbed by a porphyryn chromophore produces an excited state that can fluoresce, or generate, a reactive oxygen species. Porphyryns are an integral component in chlorophyll, a biomolecule that uses light to produce glucose and heme—a non-protein component that carries oxygen to the blood. These properties of porphyryn compounds are utilized in photodynamic therapy to treat cancer. Photodynamic therapy introduces a photosensitizer, usually a porphyryn compound, into the cancer cell. This photosensitizer is then activated by exposing it to a specific wavelength of light in the presence of oxygen, thereby forming a species of oxygen that kills these cancer cells. The exact mechanism by which this is done is unknown. We will compare the absorption of various porphyryn photosensitizers using fluorescence microscopy.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Health Risks in an Overweight Society

Anaiz Reynoso and Travis Rivera
Manhattanville College

The purpose of this project is to find the health risks of obesity if it continues in our society. The World Health Organization estimates that at least 1 in 3 of the world's adult population is overweight, and almost 1 in 10 is obese. Obesity rates have increased dramatically in the United States and the rates are among the highest in the world. There are many health risks associated with obesity that affect the cardiovascular system such as metabolic syndrome, high blood pressure, high cholesterol, abnormal glucose tolerance, or diabetes. To complete this project, two studies were conducted to obtain data. The first study measured the blood pressure of various people, while the second study compared the blood pressure of individuals to their eating habits. I hypothesize that this research will show that obesity is not good for society.

The Study of the Effect of Physiological Changes on Life Expectancy

Katherine Vera
Farmingdale State College

This study is designed to determine the impact of physiological changes on life expectancy. For this study, the *Daphnia magna* were used as subjects. The "ups and downs" associated with reactions to issues encountered in the daily lives of individuals were simulated with chemicals that stimulated "ups" and depressants "downs." Different groups were exposed to varying amounts of ups, downs, and ups and downs over the course of experimentation. The individuals were cared for in completely controlled environments that varied only by the exposure to the chemicals that initiated the physiological ups and downs. For this experiment the ups and downs are considered stressors on the body that upset a more stable environment, or the person's homeostasis. The subjects were allowed to live out their lives and the final life span of each individual was recorded. Statistical analysis of the data sheds light on questions pertaining to the ways in which stress impacts the human lifespan.

Hemodialysis and African-Americans in the City of Buffalo

Ashley Wagstaff and Nkiru Ifedigbo
SUNY Buffalo Biomedical Program

Hemodialysis is one type of kidney dialysis used to treat a variety of diseases. In this treatment the patient's blood is pumped into a kidney dialysis machine where the blood is passed through a semi-permeable membrane that allows for waste filtration; this blood is then returned back into the patient's circulation. Hemodialysis patients undergo this process an average of three times a week, and it lasts approximately 3-5 hours. There are a number of medical insurance companies that pay for this procedure for patients who cannot afford the expensive treatment. This report seeks to focus on the struggles that may be faced by African-American patients undergoing hemodialysis within the City of Buffalo and their relationship with insurance companies who may, or may not, fund this life-saving treatment.

STUDENT POSTER PRESENTERS

PHYSICAL SCIENCES

STEP Conference 2011

Polar and Non-Polar Cleaning Solutions

Emma Costa, Jennifer Shmukler, and Sima Zhukovski
Kingsborough Community College

Chromatography: Can Food Dye Cause Allergic Reactions?

Oshayne Davis
SUNY Albany

How Does the “Mpemba Effect” Work With Different Mediums?

Shelley Jain
College of Staten Island

A Study of Solar Storms

Micaylah Jones
Farmingdale State College

How Many Bacteria Can be Removed From Contaminated Water by Boiling it for a Given Length of Time?

Ebere Joseph
Syracuse University

Making an Effective Wind Tunnel for Use in a Classroom Environment

Alex Lambros and Ella Perkins
Pratt Institute

Geospatial Analysis of Lead Levels in Soils Around Our Roadways

Samir Nasim Mohammad, Aashma Dhakal, Manuela Namba, Sophia Steffen-Cruz, and Olivia Yotat
Rochester Institute of Technology

Monitoring the Quality of Our Drinking Water at School

Omayra Ruiz, John Davis, Kherie Ernise, Brandi Tyler, and Durga Katel
Rochester Institute of Technology

Egg Flootation

Kelvin Soeh and Bob Willie-Kweh
Mohawk Valley Community College

Projectile Motion

Kaliel Williamson
SUNY Albany

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Polar and Non-Polar Cleaning Solutions

Emma Costa, Jennifer Shmukler, and Sima Zhukovski
Kingsborough Community College

Polar molecules are attracted to each other because they have a positive and negative pole, and the opposite poles attract each other. We hypothesize that the principle of "like dissolves like" will apply to stain removal. Polar stains will vanish when treated with polar substances, which is the same for non-polar stains treated with non-polar substances. We tested a few stains (mascara, red wine, pizza grease, berry juice, and red ink) on cut pieces of fabric and carpet squares. To treat the stains we used household products such as rubbing alcohol, white wine, hot water, and dishwashing liquid. Polar stains were treated with polar cleaning agents, while non-polar stains were treated with non-polar cleaning agents. Our results supported our hypothesis. The polar stains were substantially diminished when treated with polar cleaning agents, and the non-polar stains were substantially diminished when treated with non-polar cleaning agents.

Chromatography: Can Food Dye Cause Allergic Reactions?

Oshayne Davis
SUNY Albany

Chromatography is the use of various physical methods to separate or analyze complex mixtures, and it is used in food processing, chemical and bioprocessing industries, and crime labs. This project is important because candy has food dyes, and these dyes may contain allergens that affect the body. It is crucial that one knows which candies to eat, especially if he/she has allergies. I hypothesize that the food dyes in the tested samples will contain allergens. For this experiment, I decided to use methods that involved paper chromatography. I took multiple samples of colored candy and separated the food dyes. Using these methods, I identified components of food dyes that are likely to cause allergic reactions.

How Does the "Mpemba Effect" Work With Different Mediums?

Shelley Jain
College of Staten Island

Most people believe that cold water freezes faster than hot water, however, in some conditions this is incorrect. The purpose of this experiment is to test the "Mpemba Effect," which proves that hot water is able to freeze faster than cold water. To test the "Mpemba Effect," liquids such as seltzer, orange juice, milk, and water will be used. The same amount of each liquid will be boiled on a stove in a closed container. The containers will be placed in a freezer; the time it takes for the liquids to freeze will be recorded with a stopwatch. After researching the effect and properties of the "Mpemba Effect," I hypothesize that it will prove true when applied to these liquids. This information will allow people to save freezing time and energy.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

A Study of Solar Storms

Micaylah Jones
Farmingdale State College

A solar storm is when activity on the sun interferes with the earth's magnetic field. Severe solar storms have the ability to knock out a large portion of the world's electrical grid. A grid of magnetometers that are positioned around the world is currently in place to measure the effects of solar wind on the earth's magnetic field. This data is published and updated every 15 minutes in K-index, a code that is related to the maximum number of fluctuations of horizontal components observed on a magnetometer. Scientists predict that a large solar storm may occur within the next few years, with a target date of May 2013.

This study aims at measuring the magnetic field at different places and analyzing the data to find out the possibility of the occurrence of a solar storm. Experiments were conducted at different places to measure the strength and direction of the magnetic field. Data was analyzed using statistical analysis methods, and the results were used to predict the possibility of the occurrence of a solar storm in those places.

How Many Bacteria Can be Removed From Contaminated Water By Boiling it for a Given Length of Time?

Ebere Joseph
Syracuse University

Reliable sources of freshwater are becoming increasingly scarce. Varying techniques for disinfecting water have been identified—i.e., using gold to identify mercury in water, or using visible light to kill bacteria. Despite these technological advances, one of the cheapest and most effective ways to disinfect water is boiling. My experiment aims to find the ideal length of time that contaminated water should be heated for it to be safe enough to drink.

To find the answer, water was collected from Onondaga Lake in Syracuse, New York and boiled for 30 minutes. During this process a microscope was used every two minutes to sample and record changes in the water's bacterial content. Tap water was collected and served as a control. This data will be plotted against time to evaluate boiled water's effectiveness in removing biological contaminants.

Making an Effective Wind Tunnel for Use in a Classroom Environment

Alex Lambros and Ella Perkins
Pratt Institute

Can an effective aerodynamic wind tunnel be created through simple construction and with the use of household materials? The unique and simple construction of a wind tunnel will be able to work in a classroom environment through simple construction techniques, and with materials found in the average household. It will be a good teaching tool for aerodynamics.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Geospatial Analysis of Lead Levels in Soils Around Our Roadways

Samir Nasim Mohammad, Aashma Dhakal, Manuela Namba, Sophia Steffen-Cruz and Olivia Yotat,
Rochester Institute of Technology

Lead is a heavy metal that can cause serious health problems in humans, such as brain damage. Lead can accumulate in the human body over time, so it is critical to identify even the smallest sources of exposure. One source of lead in the environment is gasoline combustion in cars, which can leak into the soil around roadways. To study the lead levels surrounding our roadways, soil is sampled over a one meter grid along a heavily used road in Henrietta, New York. The soil is made into slurry and acidified before adding a reagent. The color of the reaction indicates the parts per meter (ppm) of lead contained in the soil. Each sampling location is recorded with a GPS device, and this allows for geospatial analysis of lead levels in the soil around the roadway, and helps us to understand its effect on the health of the soil.

Monitoring the Quality of Our Drinking Water at School

Omayra Ruiz, John Davis, Kherie Ernise, Timarra Thomas and Brandi Tyler
Rochester Institute of Technology

Edison Tech High School was built on a land fill that may be polluting its water supplies. We tested the water from the school's drinking fountains and sinks to compare it to water from taps and bottles outside of school (such as one's home). Water testing kits will be used to detect pH, dissolved oxygen, water hardness, nitrate, phosphate, and bacteria levels of several water samples. We hope to find whether Edison Tech's water is polluted, and where and what are the worst places. If the water in school is polluted, then why are they allowing students to drink it? Also, why does the school not test the water more often? Drinking contaminated water might be affecting our brains, and we are supposed to be learning!

Egg Floatation

Kelvin Soeh and Bob Willie-Kweh
Mohawk Valley Community College

The purpose of this project is to make an egg float in tap water. This was done by changing the density of water. Normally, if placed in water, an egg will sink. However, an egg can be made to float if the water density is altered by adding a chemical. When conducted, this simple experiment made an interesting and exciting result. By adding table salt to the beaker of fresh water, the density of the water was modified in a way that made the egg float. We used varying amounts of salt for this experiment, and different observations and readings were recorded for the various amounts of salt. We observed that after adding the salt to the water, the egg floated because the density of the water became greater than the egg.

STUDENT POSTER ABSTRACTS

STEP Conference 2⁰¹¹

Projectile Motion

Kaliel Williamson
SUNY Albany

Projectile motion physics applies to virtually every aspect of life. This project sought to accurately analyze the effect of air resistance on a projectile. Knowledge of projectile science can be used for rocket science or video game programming. My findings have disproved my initial hypothesis that air resistance with a more complex equation and program does not have a large enough effect on projectile for the added cost. Depending on variables, air resistance can influence projectile up to 300%. My research showed that companies must account for air friction when considering money to be used for projectiles.

STUDENT POSTER PRESENTERS

SOCIAL SCIENCES

STEP Conference 2011

Consequences of Legalizing Marijuana

Musediq Ajomagberin and Katherine Recio
Bronx Community College

The Rise of Violence in Children

Valerie Alexander, Sabrina Formoso, and Catalina Martinez
Manhattanville College

Economics of College

Nathana Brown, Najua Baaith-Mercado, Zainab Bakrin, and Zipporah Ross
Monroe Community College

Using Artwork to Treat Patients with Psychological Disorders

Cristino Chavez and Nicole Alexander
New York Osteopathic College of Medicine

Interpretation of Facial Expressions

Menatallah Elkoush and Omnia Elkoush
New York University

Cyber Bullying: The New Way to Bully?

Alezandra Guillen
LeMoyne College

Does Facebook Replace Books? An Examination of Facebook and Student Achievement

Kevin Guzman
Mercy College

Food for Thought: Harmful Food Additives

Muizz Salami, Jorge Cardenas, and Justin Torres
New York University School of Medicine

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Consequences of Legalizing Marijuana

Musediq Ajomagberin and Katherine Recio
Bronx Community College

Marijuana is the most commonly used illegal drug in the world, and it has become a big business in the United States as more states legalize its use for medical purposes. Physicians in Colorado can recommend marijuana use for pain control, and this allows patients to apply for a state license for marijuana purchase from a state licensed dispensary. States such as Colorado and California collect millions of dollars for marijuana through annual licensing fees and sales taxes. In contrast, states like Kentucky have a no tolerance policy for marijuana, with harsh penalties for marijuana sales or usage. California supplies the country with one half of the illegal marijuana, which amounts to a \$100 billion national cash crop. The Drug Enforcement Agency (DEA) spends more than \$10 billion dollars to seize illegal marijuana. The confusing status of conflicting local, state, and federal laws on marijuana use and its health effects are addressed.

The Rise of Violence in Children

Valerie Alexander, Sabrina Formoso, and Catalina Martinez
Manhattanville College

This project seeks to find why there is so much violence in schools, and the things that can be done to stop and/or prevent it from happening. In this project we will ask kids if they have ever been bullied and how it made them feel. To find ways to prevent this ongoing problem, this research compiled feedback and information about bullying. We will answer our main question, *Why does bullying continue to happen even though most of us were taught the effects of bullying by teachers, parents, and/or administrators?* The majority of the time bullies have problems that they keep inside, and the effects of these deep-seated problems are later let out on innocent individuals.

Economics of College

Nathana Brown, Najua Baaith-Mercado, Zainab Bakrin, and Zipporah Ross
Monroe Community College

The overall objective of this project is to compare the cost of attending different colleges (2-year, and 4-year public and private institutions) with the earnings of respective graduates from the different types of institutions. This is a relevant topic because as individuals become college bound, educated decision-making on how to best invest in one's own higher education becomes important. This topic required data collection on college attendance and cost from various colleges and universities, along with research from academic journals on college cost and earnings after graduation based on major and the college attended. Tables and graphs were used to analyze data. Our research supports our hypothesis that a student's major and grade point average are more important to career earnings than the type of school attended.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Using Artwork to Treat Patients with Psychological Disorders

Cristino Chavez and Nicole Alexander
New York Osteopathic College of Medicine

Trauma has become a major issue in children and adolescents, and in many cases art is used to express their emotions. In this experiment we will examine children and adolescents and their reactions to pictures and questions. Each will respond to questions to the best of their ability, and the behavior and reactions displayed in the artwork will be analyzed. Both age groups will be asked the same questions and will be shown similar pictures of traumatizing situations; this will allow us to discover how and what they feel toward the subject. We will be able to identify individual personality type based on the response to questioning. In the future this can be used to treat people with psychological disorders who are in need of treatment but have no means of verbal communication.

Interpretation of Facial Expressions

Menatallah Elkoush and Omnia Elkoush
New York University

A teenager's interpretation of emotions frequently conflict with others. Are differences misinterpretations or merely subjective interpretations? Children, teenagers, and adults were shown twenty images of faces that had distinct expressions. They were each asked to look at images and state the first emotion that was evoked. No set answer was expected. Similarities and differences were recorded and tabulated. Younger children responded immediately and had similar responses; teenagers had the fewest similarities in responses and adjectives for images; and adults had more similar responses than teenagers, but not as many similarities as the younger children. We conclude that teenagers do not misinterpret facial expressions, but rather have different interpretations. Most disagreement came with negative emotions.

Cyber Bullying: The New Way to Bully?

Alezandra Guillen
LeMoyne College

The purpose of this project is to determine whether cyber bullying is more common than traditional bullying because of the availability of social networking sites. Cyber bullying is an aggressive act toward another using an electronic medium, while traditional bullying is direct intimidation or mistreatment of a weaker person.

To determine the type of bullying, an anonymous survey about bullying was administered to 200 students in an urban high school. Results of this survey contradicted the hypothesis that cyber bullying is more prevalent than traditional bullying. Of the students who have access to one or more social networking sites, less than half claimed that they have been cyber bullied. However, over half of the students surveyed believed that cyber bullying was easier than traditional bullying. Another notable result of this survey was that more than 50% of students surveyed claim to have been bullied through cyber, traditional, or both means.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Does Facebook Replace Books? An Examination of Facebook and Student Achievement

Kevin Guzman
Mercy College

Students all over the world use Facebook to socialize with friends and family. What effect does the world's largest social networking service have on a student's grades? The purpose of this research is to examine the correlation between Facebook use and student achievement. Five-hundred Ossining High School students were chosen at random to complete an anonymous questionnaire. All responses were carefully calculated and organized. Average study time and grade point average (GPA) were compared between frequent Facebook users and non-frequent Facebook users. These comparisons displayed a clear negative correlation between Facebook use and academics. Frequent users had lower GPA's and spent less time studying than students that did not use Facebook as often. According to the data collected at Ossining High School and the research found in past studies, it is concluded that frequent Facebook use can take a toll on a student's academic success.

Food for Thought: Harmful Food Additives

Muizz Salami, Jorge Cardenas, and Justin Torres
New York University School of Medicine

The consumption of unhealthy food is a very prominent issue in New York City. Eating unhealthy food can bring deadly additives into the body—additives that were made to preserve the food from decay or give it color for a fresher look. This research addresses the problem of food additives, and educates people about the many dangers they pose. We believe that informing the public will help them to make informed choices that prevent them from choosing foods with dangerous additives. We created a survey that inquired about people's eating habits, and provided a short information section to educate participants. Afterward, we verified whether their learning about food additives changed their eating habits. After our survey, people left feeling that they were more informed about food additives, and on average, they reported that they would avoid the dangerous additives. This research proved our hypothesis.

STUDENT POSTER PRESENTERS

TECHNOLOGY

STEP Conference 2011

Headphones and Hearing Damage

Deonasia Abel and Aduai Arop
Mohawk Valley Community College

Hybrid-Green Energy: Combining the Old with the New

Nicholas Barlow and Kylie Jones
SUNY Buffalo Biomedical Program

Abstract: Train Gap Solution

Christopher Guerrero
Hostos Community College

Functional Efficiency of Methanol Injected Hydrogen Fuel Cell

Jancarlos Guzman and Mohan Sean
Farmingdale State College

Increasing Laptop Efficiency Through Improved Cooling Technology

Gar Kong and Janson Fong
Borough of Manhattan Community College

Identifying the Variation in Sound Quality of Guitars

Brittany Mierzejewski and Kelsey Kelly
Clarkson University

How Can We Generate a Long Lasting, More Efficient Pacemaker?

Trudy Sharpe and Kaitlyn Lowe
Medgar Evers College Jackie Robinson Center

Examination of Wind Energy for Small-Scale Urban Electricity Generation

Mazhar Siddique, Marcus Barrett, and Linang Jin Jiang
Borough of Manhattan Community College

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Headphones and Hearing Damage

Deonasia Abel and Aduai Arop
Mohawk Valley Community College

This project seeks to determine whether headphones affect hearing in young teens and cause hearing loss. Document research was conducted, and research specified that many teenagers have experienced hearing loss with increased headphone use. The increase in headphone use can be attributed to increased accessibility to iPods and similar technology. Cory Portnuff states that “damage to hearing occurs when a person is exposed to loud sounds over time.” This directly supports our hypothesis that high volumes from earphones on a regular basis can damage hearing.

Hybrid-Green Energy: Combining the Old with the New

Nicholas Barlow and Kylie Jones
SUNY Buffalo Biomedical Program

There are numerous ventures directed toward creating hybrid forms of green energy. This type of innovation and improvement is crucial for steering communities into an era where they are self-sufficient in providing for individual neighborhoods and caring for the natural environment. This project will combine existing forms of solar power, revisit and revitalize energy capturing techniques, and bring grey water into a single green system. In the future a home, clinic, or hospital may be able to have a constant supply of resources for power, and this can help to reduce energy costs by using nature and its elements in a self-sustaining system.

Abstract: Train Gap Solution

Christopher Guerrero
Hostos Community College

One of the main problems of the subway system in New York City is the gap between the train and the platform. This gap becomes a danger for everyone. Over the last decade the number of passenger injuries has increased, with greater than five injuries per million rides occurring every year. The objective of our research is to find the most efficient way to eliminate the gap. Our project consists of designing a mechanism with a slit that fills the space between the platform edge and the train car door. The gap filler will be designed to activate when the doors of the train cars open and close, which will make entering and exiting the train much safer. Our solution will help to minimize accidents at the subway station, and will help the Metropolitan Transit Authority (MTA) to “GO GREEN” by spending less money on yellow warning signs that state “WATCH THE GAP.”

STUDENT POSTER ABSTRACTS

STEP Conference 2011

Functional Efficiency of Methanol Injected Hydrogen Fuel Cell

Jancarlos Guzman and Mohan Sean
Farmingdale State College

Increasing the efficiency of fuel cells is a major area of research in engineering. This study presents the results of one approach that involves a methanol injected hydrogen fuel cell. This project presents the study of the proton exchange membrane based fuel cell that uses methanol to increase functional efficiency to offer environmental advantages. The results of experiments that demonstrate the enhanced functional efficiency of fuel cells is also presented.

Experiments were done using the methanol injected fuel cells, and it was found that they were not operating efficiently enough to be economically viable fuel solutions. The experiments using the initially tested prototype revealed design flaws, and this led to the formation of a series of hypotheses. The hypotheses were tested by experiments, and the results of the study led to a major change in the design that improved the efficiency of the fuel cell.

Increasing Laptop Efficiency Through Improved Cooling Technology

Gar Kong and Janson Fong
Borough of Manhattan Community College

Energy efficiency and green technology are the most intriguing topics discussed globally. Many companies look toward producing revolutionary energy efficient devices that will reduce their environmental impact. Unfortunately, these solutions are not yet practical for consumer use. Rather than trying to make great leaps, it is wiser to take smaller steps by addressing smaller energy issues. Laptops are often overlooked, but are getting more powerful with every new product design. However, increasing processing power also increases energy consumption and heat output. This experiment was administered by employing the concepts of thermodynamics to achieve greater efficiency using practical methods of cooling a laptop. Voltage was monitored to determine energy consumption with respect to temperature. Lab results lead us to conclude that a more efficient cooling system benefits energy consumption rates.

Identifying the Variation in Sound Quality of Guitars

Brittany Mierzejewski and Kelsey Kelly
Clarkson University

Why do some guitars sound better than others? We hypothesize that guitar sound quality influences construction and price. The physical characteristics of guitars were measured and compared using a sample of high and low range guitars. We will administer an online survey using samples from a consistent recording environment where participants will differentiate between variables by completing an ABX listening test, and answering a battery of questions on their musical background. We seek to determine the background of listeners and if factors in guitar construction affect their ability to discern between the guitars.

STUDENT POSTER ABSTRACTS

STEP Conference 2011

How Can We Generate a Long Lasting, More Efficient Pacemaker?

Trudy Sharpe and Kaitlyn Lowe

Medgar Evers College Jackie Robinson Center

Challenges in manufacturing pacemakers—an electronic biomedical device that can regulate the human heartbeat when its natural regulating mechanisms break down—can be summarized into three categories: the motherboard, the lead, and the batteries. Most recent studies are geared toward the first two components.

The objective of this study is to find types of batteries that will power the pacemaker longer, thereby making it more efficient. The researchers tested the concept of a remote monitoring and control system for pacemakers through wireless devices connected to the internet (which is similar to home security monitoring systems).

Based on the comparison results, a suitable battery was discovered; moreover, using computer testing and simulations, an efficient remote monitoring system was found to be feasible.

Examination of Wind Energy for Small-Scale Urban Electricity Generation

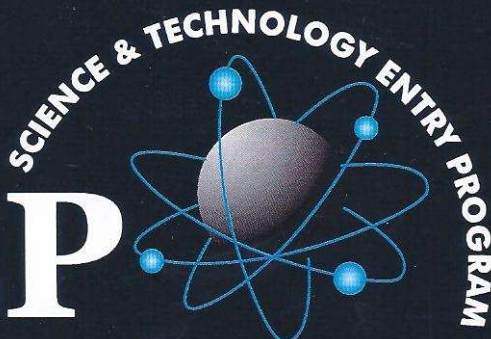
Mazhar Siddique, Marcus Barrett, and Linang Jin Jiang

Borough of Manhattan Community College

Wind energy represents a largely untapped resource in North America. While urban regions may possess substantial potential for wind energy, they are generally unsuited for the large-scale efforts that might be possible in rural regions. Micro-generation of electricity using small wind turbines is a real possibility in cities. Lower Manhattan experiences almost constant wind due to its proximity to the ocean. In conjunction with Apple Corporation and the Borough of Manhattan Community College (BMCC), we constructed and mounted a small wind turbine capable of recharging personal computers, mobile phones, and other micro-consumers of electricity. We feel that while individual consumption of power by these devices is small, they are so ubiquitous that such charging stations would cumulatively combine to afford a significant reduction of power usage in urban areas. In addition, such stations could be constructed such that when not in use, electricity generated could be fed back into the power grid.

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111 Waverly Avenue, Suite 230
Syracuse, NY 13244

