Twenty UB undergraduate students from the STEM (science, technology, engineering, mathematics) disciplines spent their summer conducting research with faculty members in their respective departments gaining an invaluable learning experience as a part of UB’s Collegiate Science & Technology Entry program (CSTEP) Summer Research Program. The 8-week program culminated on July 29th with the 8th Annual Summer Research Symposium and Luncheon. The capstone event included poster presentations from each student on their faculty-mentored research projects. Students had attended a research methods seminar, workshops, and fieldtrips exposing them to cultural events around Buffalo, NY.

CSTEP at UB is a grant-funded program sponsored by the New York State Department of Education to support talented underrepresented students pursuing careers in the STEM fields, licensed professions and health-related professions. CSTEP offers key preparation, resources and opportunities critical to student success.

Story continued on page 4.
Timothy Semon, Pre-Dental/Biological Sciences

Summer Mentor: Dr. Ashu Sharma, Professor  
Project: Immunization with Genetically Engineered Bacteria Stimulates Neutrophils Against Pathogens  
Internship Placement: Department of Oral Biology

This research focuses on the eradication of Porphyromonas gingivalis pathogenic bacteria from subgingival biofilms for the treatment of periodontitis. Using a strain of oral bacterium Tannerella forsythia with altered surface sugars, we sought to determine if oral inoculation with this strain would lead to a productive neutrophil response against P. gingivalis. Our data show that inoculation with such a strain was indeed effective in blocking P. gingivalis-induced alveolar bone loss in a mouse model.

The CSTEP Summer Research Program showed me that one should enter research with an open mind and passion. You want to leave your lab ensuring that everyone remembers you for the right reasons. You might realize that working in the lab setting is your passion or the total opposite, but each experience will help craft one’s future.

FUTURE PLANS: To continue to conduct research both in the lab and in clinical settings. Also, I plan on applying to dental school to pursue a career in dental medicine as a general dentist and then ultimately become a dean of a dental school.

Gabriella Jaramillo, Psychology

Summer Mentor: Dr. Larry Hawk, Associate Professor, and Michelle Bubnik  
Project: The Effects of Reinforcement Among Adolescents with ADHD  
Internship Placement: Center for Children and Families

Attention Deficit Hyperactivity Disorder (ADHD) is a prevalent problem that affects sustained attention. Previous work demonstrates that reinforcement, a laboratory analogue of behavioral treatment, improves cognitive function among youth with ADHD. The present investigation will examine the effects of reinforcement among adolescents with and without ADHD. Participants, aged 16 to 20 years old, will complete a common attention test, the Identical Pairs Continuous Performance Task (IPCPT), with and without reinforcement. We predict that reinforcement will improve sustained attention for youth with ADHD more so than youth without ADHD due to a deficit in sustained attention among youth with ADHD.

My advice for future CSTEP Summer Interns would be to make sure you are enthusiastic about your lab and project. Your mentor senses your interest level and appreciates it when you are excited about learning more in that area. Being interested in your work also makes presentations much easier because you feel comfortable.

FUTURE PLANS: To obtain a Doctorate of Clinical Psychology to do research among children with autism. Alternatively, I would like to study ways to make therapy more effective for minorities in the U.S.
Kemji Eke, Pre-Pharmacy

Summer Mentor: Dr. Gene Morse, Professor and Associate Director, and Tyler Mullen, BFA
Project: Preliminary Review of Existing Global Health Research Programs within the Academic Health Centers for the SUNY Global Health Institute
Research Site: Center of Excellence in Bioinformatics and Life Sciences

With global health problems on the rise, an initiative is in order to equalize healthcare and establish worldwide well-being. The SUNY Global Health Institute (GHI) is a multi-institutional resource focused on extending collaboration across SUNY campuses in an effort to expand awareness of global health issues and support education and research in these areas. An initial activity of the GHI will be to complete an analysis of the key research cores and centers across the SUNY Academic Health Centers (AHC) and summarize global health research programs within these centers. This information will be integrated into an online portal to connect students, faculty and staff to international projects occurring throughout the SUNY AHCs. The research component of the GHI will foster student and faculty awareness, and promote collaboration leading to innovative global health research grants, training and capacity building programs.

My experience in this Summer Research Program has highlighted that the research world is far different from the classroom environment. If you are presented with a research opportunity, go in with an open mind, and be ready to absorb a wave of new knowledge.

FUTURE PLANS: To pursue a M.S. in Pharmaceutical Sciences with an ultimate goal of developing a private research and consulting firm focused on holistic methods toward health.

Kevin Alexis Carpio, Mechanical & Aerospace Engineering

Summer Mentor: Dr. Manoranjan Majji, Associate Professor
Project: Feature Detector and Tracking System for an Autonomous Drone
Internship Placement: Department of Mechanical & Aerospace Engineering

Autonomous systems such as Unmanned Aerial Vehicles (UAV), commonly known as drones, have proliferated and evolved in the past decade into a new discipline of aerial robotics. Currently, UAVs cannot independently track and identify targets without human intervention. Our goal is to create software that will allow UAVs to autonomously track, locate and identify an object of interest (target). This software, novel and specific to this application, is an algorithm developed to carry out the image processing using open source image libraries called OpenCV, and its corresponding language: C++. We are in the process of developing software that will analyze video feed captured by the UAVs on board camera to process images at a far distance and identify targets in difficult environments.

By participating in the CSTEP Summer Research Program I learned that I am capable of interacting with people of different backgrounds and learning new concepts at a fast pace. Also, I have gained a passion for joining software and hardware. Lastly, I now have an interest in further exploring opportunities in the research field.

FUTURE PLANS: To develop and engage computer systems with aerial and space applications. I want to pursue a Doctorate of Engineering.
The CSTEP Summer Research Program prepares students for the laboratory environment and serve as a catalyst for future endeavors. Students learn the importance of research and gain invaluable skills to use in education, the workforce, and beyond. According to CSTEP Director Shanna Crump-Owens, the program has also served as a pipeline for students to enter graduate or professional school. For many students, conducting research offers an opportunity to gain invaluable career experience. Others see it as a chance to gain recognition as innovators.

Leatrice Bennett, a sophomore majoring in biomedical sciences, believes that conducting research “helps you become a better critical thinker and communicator.” “Research”, she says, “is an avenue for students to learn valuable skills from professionals in academia.” Third-year psychology major, Gabriella Jaramillo, shares a similar view, noting her summer research experience has given her a new perspective on higher levels of education and PhD -level work.” Many students see research as a way to interact with knowledgeable professionals and catch a glimpse of the day-to-day workings of experts in their fields. Akunne Kanu, a junior pharmacology and toxicology major, says the experience offers students “an opportunity to bring awareness to themselves and the community about a particular problem and counteract it with innovative solutions.” Kanu says the summer program also showed her the importance of networking and learning the intricacies of professionalism and effective communication.

Robert Ferguson, a senior studying biological science, adds that taking part in research “opens us to new ideas and new career opportunities.” Ferguson’s summer research program focused on the “Modulation of Host Cell Lipid Metabolism Activity in Host Cells by Treponema denticola.” In addition to the benefits of networking, many students see the research enterprise as the precursor of innovation. Research is “needed to continually improve our world, creating safer, more economical structures,” says civil, structural, and environmental engineering student, Suyeta Griffin, whose research project was entitled “Building Information Modeling (BIM) and Bridge Information Modeling (BrIM) Systems.”

Warren Barrett, a senior chemistry major, hopes his research will “shed light on another protein that may be involved in breast cancer. This could be a focal point that drug makers take into account when trying to cure estrogen receptor-related breast cancers.”

Austin Price, a member of the UB Track team, also hopes to leave his mark on history. The senior biomedical science major is investigating methods of early detection of oral cancer by testing whether there is a correlation between degree of dysplasia and microvessel density in biopsy tissues. Price states, “Research should be used to answer questions and refine solutions to problems.”

During the Summer Research Symposium, held in the Newman center on the North Campus, 16 UB faculty members judged the students’ poster presentations. The students with the highest-scoring presentations received an all-expense paid trip to present their research during the annual CSTEP Statewide Conference, sponsored by the CSTEP program at Syracuse University, being held during the spring 2015 semester at the Sagamore Resort in Lake George, NY. Pre-collegiate students from UB’s STEP (Science and Technology Entry Program), BEAM (Buffalo-Area Engineering Awareness for Minorities) and Upward Bound programs also attended the symposium. The high school students attended not only to view the presented research, but to gain invaluable exposure to collegiate level STEM research.
This past Spring 2014 semester, 14 students and staff from the UB CSTEP Program participated in the 22nd Annual CSTEP Statewide Conference entitled “Journeys Beyond Excellence”, on April 11-13, 2014 at The Sagamore Resort on Lake George, NY. Nearly 600 CSTEP students and staff from 45 colleges and universities across New York State were present. The 3-day conference exposed students to motivational, academic and career-related workshops, dynamic speakers, and a graduate and opportunities fair.

During the conference, over 160 students competed in the Research Poster Competition in natural sciences, physical sciences, technology, social sciences and human services categories demonstrating research conducted via the CSTEP Research Program. Ayo McKenzie and Jonathan Goodrum presented their research via oral presentation in the Physics categories, respectively. Our poster presenters included: Muhammad Khan in the Engineering category, Julia Newman and Angel Katche in the Natural Sciences category, and Andrews Obeng-Ayarkwah in the Chemistry category. UB CSTEP was extremely proud when Muhammad Khan and Jonathan Goodrum were awarded 1st Place in their respective categories. All presenters received a medal for their participation in the research competition.

The conference ended with an insightful keynote address by Dr. Craig Steven Wilder, M.I.T. history professor. Dr. Wilder addressed the connections between slavery and prestigious universities’ founding moments. He also explored the rise of 19th-century “race science” and the evolution of university fund-raising. The keynote session closed with a question and answer session where Dr. Wilder delved more into the importance of students of color succeeding in the STEM fields and the impact they are truly having on the future landscape of academia.

Congratulations to all our research scholars!
CSTEP’S OUTSTANDING ALUMNI

Sherry Nana Adjapong, Physical Therapist

DEGREE(S) YEAR OF GRADUATION: Physical Therapy, B.S. 2008; Doctorate of Physical Therapy, DPT 2011
ORIGINAL CITY: Bronx, NY
CURRENT CITY: Bronx, NY
CURRENT JOB POSITION: Staff Physical Therapist, Visiting Nurse Service of NY.
COMMUNITY INVOLVEMENT: Sunday school teacher and tutor at Ghana United Methodist Church.

ONE FOND MEMORY OF UB AND/OR CSTEP: Studying at Capen overnight; meeting up with friends at the student union; spending time in the CSTEP office speaking with Jenna Chrisphonte and Shanna Crump-Owens about plans for my future and creating a map and guide that led me to where I am today.

WHO YOU WOULD LIKE TO THANK: I would like to thank God for giving me strength to push through because the road to success has not always been clear. My parents for all of their love and support, as well as my mentors who provided vital information and advice.

Ronald Dukes, Engineer

DEGREE(S) YEAR OF GRADUATION: Industrial Engineering, B.S. 2000 (UB); Industrial Engineering, M.S. 2002 (Arizona State University)
ORIGINAL CITY: Rochester, NY
CURRENT CITY: New York, NY
CURRENT JOB POSITION: Business Process Improvement Lead, ADP
COMMUNITY INVOLVEMENT: Urban League Professional Network Community Service Committee (Washington, DC metro area). Conducted Industrial Engineering informational workshops for students at Eleanor Roosevelt High School in Greenbelt, MD, Volunteer for FIRST Robotics Competition. Tutor for SAT / ACT preparation for Detroit area High School students, Big Brother / Mentor to two high school male students, participated in Industrial Engineering Study Abroad Program in Grenoble, France (7 months during graduate school).
PROFESSIONAL ACCOMPLISHMENTS: Lean Sigma Black Belt Certification (Rolls-Royce), Six Sigma Green Belt Certification (Ford, Ford College Graduate Engineering Rotational Program, 2012 Rolls-Royce Global Supplier Development Best Practice Conference Team.
ORGANIZATIONS AND AFFILIATIONS: National Society of Black Engineers, Resident Advisor, Institute of Industrial Engineers, Alpha Pi Mu.
WHO YOU WOULD LIKE TO THANK: National Society of Black Engineers UB Chapter for all the support during my time at UB. Being a member of NSBE has helped me professionally and socially in so many ways that I am indebted to the organization for all the opportunities I was exposed to. All my fellow CSTEP students and alumni. A special thank you to Shanna Crump-Owens and Dr. Letitia Thomas for all the support and dedication you gave us throughout the years in CSTEP and MAAP.
We love hearing about all of our student accomplishments.

Please let us know of any internships, research experiences, or scholarships you have been awarded this past year!

“Success is walking from failure to failure with no loss of enthusiasm.”

WINSTON CHURCHILL, FORMER PRIME MINISTER OF THE UNITED KINGDOM

“Just don’t give up what you’re trying to do. Where there is love and inspiration, I don’t think you can go wrong.”

ELLA FITZGERALD, JAZZ SINGER
DID YOU KNOW?

Did your computer crash? Is it being slow? Need one for the semester? CSTEP now has a laptop loaner program for the Fall 2014 semester. Students interested in borrowing a mini netbook should stop by the office today!

CSTEP Laptop Loaner Program

1. Register on lsac.org as soon as possible. LSAC is an online service that provides you with an easy and effective way to ensure that you have assembled everything you need to successfully complete the law school application process. This is where you will register for the LSAT, complete your online applications, and assemble your recommendation letters, personal statements, and transcript.

2. Maintain a GPA above a 3.0. Law school is a rigorous program. Strong academics matter! Your undergraduate GPA shows that you have the work ethic, study skills, and discipline that are needed to succeed academically.

3. Prepare for and take for the LSAT. The LSAT is the standardized exam that is required for all ABA law school. It is crucial that you prepare for the LSAT! This exam tests a standard measure of acquired reading and verbal reasoning skills, and it can make or break your chances of getting into law school. Preparing for the LSAT can be costly, so don’t forget that CSTEP provides the Kaplan Scholarship for qualified students to help prepare them for the LSAT through an on-site Kaplan exam-prep course. It has been shown that students who take an exam prep course are likely to do better on standardized exams.

4. Apply early. The earlier you apply to schools the greater your chances are of getting in and getting scholarships. At the beginning of the application cycle, schools have more slots to fill and are more likely to accept good candidates.

5. Most law schools require recommendation letters. Generally, they will require that at least one of your letters of recommendation is from a professor. It is never too late to start building a relationship with your professors. An easy way to do this is by going to their office hours.

6. A Personal Statement may also be required. This may be one of the most difficult parts of the application process. Remember that CSTEP provides assistant in personal statement revisions and edits!

THINKING ABOUT APPLYING TO LAW SCHOOL?
Here are a few tips to consider:

CURCA: Funding Your Research
$500 Undergraduate Research Awards

Are you interested in doing research? If so, the Center for Undergraduate Research and Creative Activities (CURCA), $500 undergraduate research awards may be of interest to you.

This research award could be used to purchase new equipment or materials that may be vital in conducting your research. This funding could also be used to cover the cost of covering your attendance to a research conference to present your research.

The Benefits:

• Receiving funding for your research looks good on applications to graduate schools
• This money could be used for materials your lab may not otherwise have access to
• Attending a research conference to present or even to attend can be an enlightening experience
• Applying for this Award is great practice for other grants you may be interested in applying to in the future

Applications are accepted and reviewed throughout the Fall and Spring Semesters. It would a good idea to start working with a research mentor on your application now; the first deadline for applications this Fall semester will be October 1st, 2014 by 3:00 PM.

For more information, visit http://curca.buffalo.edu/students/funding.php
COMMUNITY SERVICE: Habitat for Humanity
UB CSTEP students help transform house for needy local WNY family

CSTEP Community Service Day with Habitat for Humanity

Join UB CSTEP on
Saturday, November 22, 2014
from 9:00am to 2:00pm

Meeting Location: University Train Station, UB South Campus (Meet at 8:30AM)
Community Service Location: TBD

Skills Needed
No skills are required, just a desire to work and learn
Wear closed-toe shoes and comfortable clothes

Please RSVP to Nelson Rivera by November 14 at nmrivera@buffalo.edu

CSTEP students have had the privilege of painting, repairing roofs, putting up siding, demolishing interiors of houses, assisting in electrical and masonry work, and landscaping. The students walk away knowing they helped a family come closer to owning their own house.

This past summer, 25 students volunteered at a house on Fox Street in the City of Buffalo. Habitat for Humanity staff say our students, in 6 hours of work, completed nearly 6 weeks worth of work done by regular Habitat for Humanity staff, which is all on a volunteer basis.

This Fall 2014, CSTEP students will once again have the opportunity to volunteer in another home renovation project with Habitat for Humanity on Saturday, November 22nd.

Habitat for Humanity believes that every man, woman and child should have a decent, safe and affordable place to live. They build and repair houses all over the world using volunteer labor and donations. Their partner families purchase these houses through no-profit, no-interest mortgage loans.

HABITAT FOR HUMANITY FACTS

As a nonprofit, ecumenical Christian ministry that builds with people in need regardless of race or religion, we welcome volunteers and supporters from all backgrounds.

They have more than 1,500 local affiliates in the United States and more than 80 national organizations around the world. Together, we have helped to build or repair over 600,000 houses and serve more than 3 million people worldwide.

There are nearly 2 billion people around the world who live in slum housing and more than 100 million are homeless. Habitat for Humanity helps by building or renovating simple, decent houses in partnership with those in need.

Families left homeless by natural disasters, war and civil unrest often face dire housing situations as they struggle to rebuild their lives. We provide shelter and housing assistance to help these families recover.
OUR MISSION

The mission of the CSTEP Community Health Educator (CHE) Program is to increase the number of individuals participating in the organ donor registry through engagement in service learning. Our commitment is to enhance and save lives through organ, tissue, eye, and blood donation, while maintaining respect for those who give the gift of life. Allied health and science majors are charged with creating awareness and educating campus peers and the Buffalo community regarding the importance of organ donation – a critical health issue.

Service learning integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility, and strengthen communities.

Requirements:
- Must attend orientation/training AND class sessions
- Must conduct educational workshops for UB and Buffalo communities
- Must complete 75 hours of service
- Must plan and facilitate a campus-wide organ donor registry drive

Benefits:
- Structured training
- Positively impacting a critically important health issue
- Develop team building, public speaking and presentation skills
- 2-credit hour course
- Networking with healthcare professionals

Applications due Friday, November 21, 2014
Orientation/Training Wednesday - Saturday, January 21-24, 2015

For more info, contact Shanna Crump-Owens, CSTEP Director at 645-2234 or email sicrump@buffalo.edu
Rx for Success:

PHARMACY SCHOOL

Thursday, October 23, 2014
183A Kapoor Hall at 4:00pm
South Campus

Get answers to your burning Pharmacy School questions & network with current students!

“How do I apply?”
“What about the interview?”
“Are there scholarships?”

“Do I have to do research?”
“Where do I start for my personal statement?”

If you would like to attend, please RSVP with Nelson Rivera:
nmrivera@buffalo.edu

Follow us on:

For information, visit us in
222 Norton Hall
716-645-2234
cpmc.buffalo.edu/cstep
INROADS

The nation's largest source of **PAID UNDERGRADUATE SUMMER internships** for underrepresented minority students at major companies

Companies include: UTC, PwC, Deloitte, Target, Ernst & Young, MetLife, Lockheed Martin, Liberty Mutual, KPMG, Pfizer, and many more!

**Program Dates**

**Informational Session:** Wednesday, November 5

All Welcome, 3:00-4:00PM, 12 Capen Hall (Fish Bowl)

**Live Interviews:** Friday, November 7

By Invite Only, 12:30-3:30PM

**Who’s Eligible?**

Competitive internships available for:

- Full-time undergrad students
  - 3.0 GPA or higher
- At least 1 summer remaining before graduation
- Majors sought: Engineering, Pharmacy, Computer Science, Business, Finance, Accounting, Economics, Healthcare, Marketing
- U.S. Citizen or Permanent Residency

**Apply Here:**

INROADS Internship Application found at [WWW.INROADS.ORG/APPLY](http://WWW.INROADS.ORG/APPLY)

- Resume
  (Microsoft Word format ONLY)
- Candidate Questionnaire
- Official Transcripts

**Apply by October 29, 2014**

Average interns earn $4-10k/summer!

Stop by today if you have any questions

222 Norton Hall
716-645-2234
cpmc.buffalo.edu/cstep

Follow us on:
Maximizing Your Potential

WHEN
Friday, October 31, 2014
Noon - 1:30PM

WHERE
567 Capen Hall
FREE LUNCH FOR ALL GUESTS

Dr. Celeste Owens
Psychologist, Speaker, Author

Dr. Owens shares tools for you to beat procrastination, be proactive, persevere, make sound decisions and much, much more!

For more information, contact Nelson Rivera at nmrivera@buffalo.edu

For information, please visit us in
222 Norton Hall
716-645-2234
cpmc.buffalo.edu/cstep

Follow us on:
## October

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<tr>
<th>Date</th>
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<tbody>
<tr>
<td>3 Fri</td>
<td>CSTEP MONTHLY MEETING: Preparing for Graduate School, Noon - 1:00PM, 567 Capen - LUNCH SERVED!</td>
</tr>
<tr>
<td>8 Thu</td>
<td>CSTEP Service Learning Project - Community Health Educator (CHE) - 2015 Cohort Applications Available</td>
</tr>
<tr>
<td>9 Wed</td>
<td>INROADS (*Details TBD)</td>
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<tr>
<td>23 Thu</td>
<td>RX For Success “Pharmacy”: 4:00PM, TBD Kapoor Hall, South Campus Pharmacy School - FREE FOOD!</td>
</tr>
<tr>
<td>31 Fri</td>
<td>CSTEP MONTHLY MEETING: “Maximizing Your Potential”, Guest Speaker: Dr. Celeste Owens, Noon - 1:00PM, 567 Capen Hall - LUNCH SERVED!</td>
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## November

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<th>Date</th>
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<tr>
<td>5 Wed</td>
<td>CSTEP Connect: Opportunity to shadow CSTEP Alumni at work during the Winter Session - Applications DUE!</td>
</tr>
<tr>
<td>14 Fri</td>
<td>CSTEP MONTHLY MEETING: Undergraduate Research Luncheon Session A, Noon - 1:00PM, 567 Capen Hall - LUNCH SERVED!</td>
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<tr>
<td>27 Sat</td>
<td>Community Service: HABITAT FOR HUMANITY - Building/Renovating a House 8:30AM meeting time at UB South Campus Train Station (Upper Level)</td>
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## December

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<th>Date</th>
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<tr>
<td>5 Fri</td>
<td>CSTEP MONTHLY MEETING: Undergraduate Research Luncheon B &amp; End of Semester Reception - Noon-1:30PM, 567 Capen Hall - LUNCH SERVED!</td>
</tr>
<tr>
<td>5 Fri</td>
<td>Recruitment begins for 2015 CSTEP Summer Research Program - Applications Available</td>
</tr>
<tr>
<td>5 Fri</td>
<td>CSTEP Fall Internship Program Ends</td>
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**CSTEP Graduate Assistant’s Office Hours**

- **Nelson Rivera:**
  - Tues - Fri 10AM - 3PM

- **Aisha Thornton:**
  - Wed 1PM - 5PM
  - Fri 12:30 - 5:00PM

- **Mohammad Haque:**
  - Wed 10AM - 12PM
  - Thu 10AM - 12PM
  - Fri 10AM - 5PM

The CSTEP Graduate Assistants are available during these office hours to meet with students to discuss graduate school options, review personal statements, and assist with the application process.

**Drop in Hours with Shanna Crump-Owens**

- Mon, Wed, Fri 11AM - 4PM
CSTEP MISSION STATEMENT

The Collegiate Science and Technology Entry Program (CSTEP) provides services and activities to increase talented underrepresented students’ retention into the licensed professions and careers in science, technology, engineering and mathematics (STEM). CSTEP meets this objective by providing the following services: academic and career advisement paid academic year and summer research/internship opportunities, tutoring, academic and career workshops, the CSTEP/Kaplan Scholarship, personal statement review and assistance with the graduate school application process, the CSTEP Excellence Scholarship, monthly student meetings, newsletters, attendance to conferences, and other enrichment activities.