Greetings from the Dean

Welcome to the Fall 2015 edition of EUREKA! A Newsletter of the School of Science and Technology at Georgia Gwinnett College. This has been a great semester for SST. We have had another banner year of growth at GGC and among SST majors. GGC grew by 6% to 11,500 students and the growth of STEM majors was 8% to over 3200 students. This means that for the fourth year running the growth of STEM majors has outpaced the growth of GGC. Of particular note is the growth of our new chemistry major and the continued growth of the information technology major.

Probably the biggest event for the college this semester was our GGC10 celebration. I wanted to offer my thoughts on our 10th anniversary since I am the charter dean of SST and have been here since the beginning of the college. We have grown quite large since our humble beginnings in 2006 but the VISION of GGC is alive and well. I believe our commitment to building a high student engagement campus with faculty and staff focused on the needs of students is unique in higher education. I believe we are unique because we have built a college that is strong in three important areas: high quality and rigorous academics, high student engagement strategies, and low cost. I contend that some of the best institutions in the US are strong in one or two of these characteristics but GGC is unique, maybe singularly unique, in that we are strong in all three. However, as I reflect on GGC10, it is clear to me that we have an image problem. We are becoming well known for our student engagement and low cost but not necessarily for our high quality and rigorous academics. I hope that in a small way this newsletter will help you see all the great things happening in SST.

If you have suggestions for content or alumni updates or have any questions for us you can email us at scienceandtech@ggc.edu.

Enjoy our celebration of discovery,

Tom Mundie
Dean
Follow me on Twitter (@tommundieSST)
During Spring 2015, professors and students petitioned to install a chapter of Kappa Mu Epsilon, a national mathematics honor society, at Georgia Gwinnett College. Efforts to have the Georgia Zeta chapter installed were led by Dr. Jennifer Sinclair and the members of the mathematics engagement committee.

On April 28, 2015, professors and parents of mathematics students gathered in the Heritage Room of the library to honor the first Georgia Gwinnett initiates into Kappa Mu Epsilon. The fifteen students qualifying for membership in the new Georgia Zeta chapter were selected for membership due to their strong qualifications of academic merit and professionalism. Additionally, several mathematics faculty members proudly joined the organization in support of the students.

Dr. David Dempsey, KME South Eastern Regional Director and Professor at Jacksonville State University, was in attendance to conduct the installation ceremony. Dr. Thomas Mundie, Dean of the School of Science and Technology, served as keynote speaker. Drs. Stan Perrine and James Price acted as host and conductor for the event, and guests were invited to a reception immediately following the ceremony. Dr. Jamye Curry serves as Corresponding Secretary to the national organization and Drs. Jennifer Sinclair and Livinus Uko are the local faculty co-sponsors for the honor society. The Georgia Zeta Chapter is currently under the leadership of student president Shahriyar Roshan Zamir, and is very active in its service mission. Kappa Mu Epsilon students volunteer at the MiA summer scholars program and the Duluth STEM festival, providing outreach to the surrounding community. Internally, the KME students conduct a weekly peer mentoring series where they assist fellow students taking challenging upper level mathematics courses from Calculus II and beyond.

Kappa Mu Epsilon members proudly wear pink and silver cords at graduation. The organization aims to “develop an appreciation for the beauty in mathematics” in themselves and in others.

Preparing GGC students for the Microsoft Technology Associate (MTA) Certification

The Microsoft Technology Associate (MTA) is a Microsoft certification that addresses fundamental concepts, assesses and validates core technical knowledge, and enhances technical credibility. There are several versions of the MTA: 98-366: MTA Networking Fundamentals, 98-367: MTA Security Fundamentals, and 98-364: MTA Database Fundamentals.

It is well-known that a college degree is typically a minimal requirement to obtain employment in today’s highly competitive job market; however, in addition to a degree industry certifications give prospective graduates a great advantage in obtaining that elusive first job in the respective field of study. Assistant Professor of Information Technology Dr. Binh Tran understands this fact. He currently holds over 10 industry certifications and starting this Fall 2015 semester, he...
incorporated practical knowledge and skills required to pass the 98-366: MTA Networking Fundamentals certification exam directly into his ITEC3100 – Introduction to Networks courses. This strategy gives students the ability to earn a good grade in the course along with being fully ready to take and pass an industry certification increasing student motivation to learn the material. He plans to offer a preparation workshop for all students interested to learn more about how to successfully study and take industry certification exams towards the end of the semester. In addition, he is working with the Dean’s office and Testing Services in an attempt to make GGC an official test center for all to take MTA exams on campus.

Super Saturday Series Engages Female Middle and High School Students in Hands-on STEM

Super Saturday Series at Georgia Gwinnett College hosted 63 middle and high school girls on Saturday, September 26 and November 7, 2015! Super Saturday Series (S3) provides a low-cost, initial exposure to outreach technologies. Our girl-friendly curriculum is focused on mobile applications, new devices (tablets), creativity (animations), and relationship building (group collaboration). In addition to introducing students to technologies, we incorporate science lessons through partnerships with our Chemistry and Biology student clubs. Super Saturday Series is co-directed by Dr. Kristine Nagel and Dr. Nannette Napier, with science sessions lead by Dr. Gillian Rudd and Dr. Elizabeth Harrison.

Middle school participants used the Pencil Code programming environment to create art on the computer. Pencil code uses a drag and drop interface to draw geometric objects on a computer. Middle school girls also used Adobe Flash to create an animated postcard of pictures of their day at GGC. Guest speakers shared their path to major in computing and what they find most interesting in technology.

High school women used Leap Motion devices to control game play using natural hand grasping motions to reach into the on-screen game. Leap Motion is a small peripheral device that plugs into the USB port of your computer and allows the user to interact with virtual objects as you do in the real world. High schoolers also learned how to create artistic pictures through programming in Python. Our high schoolers used the Jython Environment for Students (JES), an easy-to-use programming environment that allows you to create and run Python programs. By the end of the workshop, the girls learned to program in Python and created expressive pictures using special effects with Python programs.

In science explorations, the students compared evidence found at the crime scene to suspects and helped to find the perpetrator! They worked with biologists and GGC students to analyze hair, blood, and DNA from S3 middle school girls mix chemicals to make soap in a Chemistry lab led by GGC Chemistry students

S3 participants use hand motions with LeapMotion technology to play games created by GGC IT students
a crime scene and learn how they can be used to solve the crime. Other explorations included the chemistry behind tie dye, where each middle schooler created their own shirt.

S3 is sponsored by School of Science and Technology and receives support from Women in Technology, which creates a community of female students of all ages, partners them with local professional women in technology, then helps them make informed decisions about careers in science, technology, engineering and math. See more at http://www.mywit.org/

Technology Ambassadors Program Recognized as National “Best Student Leadership Corps”

The GGC Technology Ambassadors Program’s (TAP) was honored as the “Best Student Leadership Corps” from the fifty participating campuses in the NSF-funded STARS Alliance. In August, 2015, our TAP members received a plaque and 10 Nexus Tablet computers to honor the student leaders in the corps. This is an interdisciplinary program with faculty liaisons from School of Science and Technology and School of Business; student members also range from IT, business and liberal arts majors. Dr. Kristine Nagel and Dr. Nanette Napier serve as Co-Directors of TAP since its founding in May 2012.

During the year, TAP participated in eleven large-scale events to recruit students, as well as 28 activities for corps members’ development. Additionally, all TAP students created either tutorials or demonstrations that were shared with peers in twelve technology-related classes.

TAP students organized our first ever Technology Ambassadors Program Expo. This recruiting event was held during the student activities hour on campus and featured student-led technology demonstrations, food, games, and a panel of former TAP Leaders describing the benefits they gained personally from the TAP experience. This event successfully recruited new members and brought the corps to the attention of faculty, who were very impressed with the professional maturity of the members.

The volunteer work of TAP members has been crucial in sustaining an on-going outreach program to middle and high school students. In particular, the fourth year of Super Saturday Series (S3) was a great success due to both current members’ service and contributions of TAP alumni. Alumni developed and lead technology tutorials in Scratch, Python and Alice. During the 2014-15 school year, TAP assisted at four S3 events which served 160 ethnically diverse participants, with nearly 50% belonging to groups that are underrepresented in computing. S3 served students from 68 different schools around the Metro-Atlanta area, as well as 12 homeschool students. The S3 program has a significant impact on our community and helped increase female enrollment in GGC summer tech camps. One S3 event supported by SLC provided significant content for GGC’s submission to the White House Near Peer Mentoring Video Contest (see https://vimeo.com/120834578).
ITEC Professor Receives Outstanding Student Engagement Faculty Award

Dr. Sonal Dekhane, Associate Professor of Information Technology in the School of Science and Technology was this year’s recipient of the Outstanding Student Engagement – Faculty Award. Dr. Dekhane has worked tirelessly to develop programming that allows students opportunities for personal and professional development. Her devotion to the holistic development of GGC students in the School of Science and Technology has led to such significant and creative initiatives as Tech Talk, Summer Java Boot Camp and Summer Tech Camp, each focused on technical topics that provide opportunities for students to network with each other, faculty and industry experts. As a mentor to the student organization Women in Information Technology at GGC and Technology Ambassadors Program, she has helped numerous students acquire the confidence and leadership skills they will need to succeed in their future careers. Her efforts contribute meaningfully to student learning.

Assistant Professor Pratima Darr selected as Biology Scholar by American Society for Microbiology

Assistant Professor of Biology, Dr. Pratima C. Darr, was selected to participate in the Biology Scholars Program of the American Society for Microbiology, funded in part by the National Science Foundation. As one of fifteen international scholars, Dr. Darr travelled to Washington D.C. this summer for hands-on training at the Scholarship of Teaching and Learning (SoTL) Institute, located at the American Society for Microbiology headquarters. “One of the things that was eye-opening is the explosion of SoTL on college campuses throughout the developed and developing nations of the world,” said Dr. Darr. “There is a growing demand for scientists who are scholars of teaching and learning. Beginning to learn the language of SoTL and how this type of work can be made rigorous was also of great significance.”

The Biology Scholars program is designed to train faculty in any area of biology to become effective teachers, researchers and scholars of educational practice. The overarching goal of the Biology Scholars Program is to foster leadership among biologists so that they can serve as role models and mentors in the implementation of the best pedagogical practices in both local and national/international arenas. Dr. Darr is the
the second participant from Georgia Gwinnett College since Associate Professor of Biology Dr. Latanya Hammonds-Odie completed her experience with Biology Scholars in 2012. Notably, Dr. Wendy A. Dustman, who joined GGC in 2014, also completed this experience in 2011 while still at the University of Georgia and is to be credited for inspiring Dr. Darr to apply for the same.

Specifically, Dr. Darr was selected to develop herself in the area of designing and implementing a classroom research study. The program has provided Dr. Darr with invaluable guidance in focusing her research topic and building in the assessment tools to provide the quantitative and qualitative data necessary to yield meaningful insights on student learning. Dr. Darr is implementing the study in her internationalized BIOL 1102 classes in the 2015-2016 academic year. Her study is titled, “Investigation of any Potential Correlation between Mindset and Attitude towards Active Learning, in an Internationalized Non-majors Biology Class.”

When asked about her experience at the Washington D.C. Institute, Dr. Darr said, “Meeting like-minded individuals who are at a similar stage in their journey to become SoTL scholars was of immeasurable value. Becoming a part of this worldwide network is both humbling and empowering at the same time.” More information about The Biology Scholars program of the American Society for Microbiology can be found at www.biologyscholars.org.

Dr. Pratima Darr participated in the Biology Scholars Program of the American Society for Microbiology

Dr. Meso’s Information Technology Research on Knowledge Management Receives Recognition

A n article that Dr. Peter Meso published on the topic of Knowledge Management has been recognized as one of the top 100 most cited articles on that topic within the discipline of Information Technology. A study published in the Journal of Knowledge Management in July this year identified that Dr. Meso’s article, titled “A resource-based view of organizational knowledge management systems”, and which was published in the Journal of Knowledge Management (Vol. 4 Issue: 3, pp.224 – 234), was ranked 25th based on the number of citations it received. This makes it one of the citations classics in the Knowledge Management field.

Dr. Meso’s article addresses the question: “Are Organizational Knowledge Management Systems (OKMS) strategic assets within the context of the resource-based view?” In responding to this question it posits that there are two views of OKMS: the technical and the socio-technical view. It then offers an analysis of OKMS from each perspective and explains their resultant implications on the competitive position of a firm. The paper reaches the conclusion that, “for a firm to reap long-term strategic benefit from OKMS, it should adapt the broader socio-technical view when developing, implementing and managing its OKMS. This suggests that firms need to consider not only the technology but also the organizational infrastructure, the organizational culture and the people who form the OKMS, and the knowledge that is to be processed by these OKMS”.

Dr. Pratima Darr participated in the Biology Scholars Program of the American Society for Microbiology

Dr. Peter Meso
Professor of Information Technology

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Integrative Learning Approaches to Information Security Education

The paper presented by Dr. Sherly Abraham, Assistant Professor, and Information Technology at Georgia Gwinnett College on Integrative Learning Approaches in Cybersecurity education won the best paper award at the Information Security Curriculum Development conference held Saturday October 10th, 2015 at the Coles College of Business, Kennesaw State University. The paper describes a multifaceted approach to cybersecurity education based on integrative learning theory. The importance of an interdisciplinary approach in information security education that fosters learners to think critically and draw connections from disparate disciplines is described in the paper. Also, the paper emphasizes the need to build strong connections with the industry in order to develop a competent workforce. The need to develop conceptual, tactical and practical skills among cybersecurity professionals through curriculum, experiential learning, assessment and a community of practice is the main highlight of the paper.

Information Quality as a Determinant of Task-Technology Fit in Using Communication Technology for Simple Task

In fall 2015, Dr. ChongWoo Park published an article entitled “Information Quality as a Determinant of Task-Technology Fit in Using Communication Technology for Simple Task” in the journal of Issues in Information Systems, which has been also presented at the International Association for Computer Information Systems (IACIS) 2015 Annual Conference.

His paper examines how IT users evaluate the fit between their task and the IT systems they use, and how the fit affects their individual performance. He proposed a new task technology fit model with information quality to better understand users’ fit evaluation. The model has been assessed with the data collected from 112 undergraduate students using the course management systems. The results show that IT users can better evaluate the fit between their task and the IT systems when they consider the quality of information they deal with in the IT systems. This study also found that IT users perceive better task-technology fit and have higher individual performance when they have high quality of information in the IT systems. One interesting implication from this study is that students may perceive that the course management systems such as D2L will better support their academic performance if the system has higher quality of information.
In summer 2015, assistant professor of Physics Dr. Qing Shao published an article collaborated with researchers at Emory University. The article “E. Coli Gyrase Fails to Negatively Supercoil Diaminopurine-Substituted DNA” is published on Journal of Molecular Biology on July 3rd 2015 (doi:10.1016/j.jmb.2015.04.006).

This article is based on an interdisciplinary research project of DNA protein interaction funded by Human Frontier Science Program. The main focus of the project is using physical method to study how the stiffness of DNA molecule affects the interaction with Type II topoisomerases (gyrase is one enzyme in this family found in bacteria). Type II topoisomerases play a vital role in cell division by disentangling newly replicated chromosomes, therefore this family of enzymes becomes popular targets for chemotherapy to treat cancer.

Researchers found that DNA molecule is always bent significantly by type II topoisomerases during interaction. Dr. Shao and collaborators believed that the stiffer DNA molecules would be difficult to be bent, therefore, slow down or even inhibit the activity of the enzymes. By substituting Adenine with Diaminopurine in DNA, they were able to create stiffer DNA molecules. The activity of type II topoisomerases were tested on both wild type and stiffer DNA using innovated single molecule biophysics technique name “Magnetic Tweezers”. One end of DNA molecule

is attached to the 1 micron paramagnetic bead and the other end to glass surface. A pair of normal sized magnets are used to exert force to the paramagnetic bead, therefore, apply force to stretch or twist a single DNA molecule.

The study has been done on the single molecular level with DNA subject to different tension and torque. The results show that some activities of Type II topoisomerases slowed down and the others are inhibited with stiffer DNA molecules. For more information, please access the full text of this article online through Journal of Molecular Biology.

Dr. Qing Shao’s research interests is to use the physical methods to investigate biological system, stay tune on her future publication with related projects.
GGC’s Program Featured on TV

Exercise Science featured in the Weather Channel

During July 2014, the General Manager of HQ, Inc. approached Assistant Professor of Exercise Science Dr. Pamela Anderson. The Exercise Science discipline at GGC had recently purchased a temperature monitoring system which included CorTemp® sensors and a recorder. The sensor is essentially a pill that is swallowed that transmits core temperature to the recorder. Hence, body core temperature, which can be very different from skin temperature, can be monitored in real-time. Carbonelli asked Dr. Anderson if she would like to work with the Weather Channel to demonstrate the CorTemp product. She agreed to participate, and was introduced to Christina Glowacki, a producer for the Weather Channel. Once the producer laid out her vision for the piece, Dr. Anderson contacted the GGC Athletic Director, Dr. Darin Wilson, to inquire if there were a few athletes that could be enlisted to participate in this project. The men’s soccer coach, Mr. Steve DeCou, agreed to allow two athletes to be measured during a normal practice session.

The producer and her crew came out to the athletic facility to check out the soccer field and facilities in preparation for the shooting during August 2015. Dr. Anderson met with the Weather Channel team and gave them a thorough tour of the facilities. Several days later, the Weather Channel group returned in the middle of the day to set up for the four hour shoot. Mr. Ned Colegrove, from GGC Athletics and a representative from Gwinnett Medical Center attended the taping to handle any pertinent public relations situations.

GGC’s hard working soccer team members ingesting the pill and real recordings of large increases in their core body temperature, regardless of the unseasonably cool weather. Following the work-out induced temperature increases, common methods for decreasing their temps were shown to be effective – drinking cold water, moving to an air-conditioned room, and taking an ice bath. The Athletics department and James Williams (Head Athletic Trainer/ Bio not available) were easy to work with and added support throughout the taping.

Dr. Anderson had hoped to show even larger increases in core body temperature as would be the case on a typical August day. Dr. Anderson is shown in the video effectively answering the reporter’s questions regarding heat injury. She followed up with providing the producer with some of the latest research on heat illness/emergencies. Though it took a year for the segment to air, the end product is something we can all be proud of here at GGC.

The video features GGC’s Dr. Pamela S. Anderson and Grizzly Athletics Men’s Soccer demonstrating how an athlete’s body responds to exercising in heat and humidity.

Born in Vietnam, Mai Tran moved with her family to Gwinnett County in 1992. When she came to GGC in 2009, she was assigned Dr. Deborah Sauder as her mentor, who was also her Principles of Chemistry professor. She took Organic Chemistry with Dr. David Pursell and then, under his care, developed an assay to evaluate oil and grease levels in GGC groundwater.

She graduated with a Bachelor’s of Science degree in Biology in 2012, and was accepted into the School of Pharmacy of Philadelphia College of Medicine – the Georgia campus of which is in Suwanee. Now, as a fourth year pharmacy student, Mai is working in a compounding externship at Walgreens. In December, she will be attending the American Society of Health-System Pharmacists (ASHP) Mid-Year Clinical Meeting in New Orleans in December, 2015 where she will present her current research, Evaluation of Methods Predicting and Preventing Clostridium difficile Infection.

While in New Orleans for the ASHP meeting, Mai will also be interviewing for residency programs across the nation. In her words, “[I plan] to graduate with a doctorate degree in pharmacy from PCOM School of Pharmacy in Spring 2016, complete a first year general residency (PGY1), and then begin a career in ambulatory care and or community pharmacy.”

Congratulations, Mai Tran!
Mr. Ibrahiim Imtiaz completed his Biology requirements in December 2014. His general long-term career plans while enrolled at GGC was to work in any science related industry. While he was a student at GGC, he made sure he had relevant career related experience by enrolling in as many undergraduate research projects as he could. Here he developed crucial analytical chemistry skills and has parlayed these experiences into his current position at Ellis Pain Center as a Senior Scientist. Mr. Imtiaz’s responsibilities include managing the operations of a high complexity laboratory performing drug analysis. He works directly with people of all different types of science backgrounds including: computer programmers, doctoral scientists, medical doctors, physician assistants, and sales managers. The most rewarding part of his job Ibrahiim says, “is knowing that I can make a significant difference to this medical practice and to the quality of patient care received”. Ibrahiim’s advice to undergraduate students is “be open minded if you’re looking for a great career opportunity in the science industry. There are so many science related jobs that you don’t have to go the traditional route and be a doctor, pharmacist, or a bench scientist”.

There are many career options available to Biology majors. The GGC Career Development and Advising Center (CDAC) has resources available to current students as well as alumni. Services include career counseling, a career resource library, and career development workshops to help with resume writing and interviewing skills. Associate Professor of Biology Dr. Latanya Hammonds-Odie tells students “Don’t wait until you’re a senior to consider what career options are realistically available to you. Spend some time thinking and exploring. Any field that you go into these days requires that you have some experience besides a degree. So take the time over your school breaks to shadow and network, invite someone who has a job title that you think you might like out for coffee and a chat about what they do”.

Female IT Major Receives GGC’s 2015 Outstanding Student Organization Officer Award

Genie Yang, President of WIT @ GGC, was recognized by Student Affairs for Outstanding Officer of the Year. At the 2015 annual awards ceremony, Genie Yang was recognized as the Outstanding RSO Officer for all student groups. She is the charter President and founding member of this organization. She works tirelessly to provide all students at GGC with timely information on technology-related events, including external events for professional development and career fairs. She organized an on-campus event for all students including external guest speakers from Georgia Pacific and MyWIT.org, a non-profit foundation with programs to connect STEM students and local companies in August.

Female IT Major Recognized as GGC’s Outstanding Student Creativity Award

Kamilah Kiser was awarded GGC’s Outstanding Student Creativity Award at convocation, September, 2015. Kamilah is an IT major with Digital Media concentration, and is the first SST student to win the Creativity Award. To achieve this honor, Kamilah has demonstrated a high level of creativity in extracurricular activities, not just in products, but also in leadership, and in actions that are useful and inspiring to the GGC community.

In the 2014 Technology Ambassador Program (TAP), Kamilah showed her creativity as a member of the CS
Unplugged student team. In addition to learning how to engage young people in a computing event that did not actually use computers, she also created a new CS Unplugged activity, programming with turtles. She designed the turtle materials to support the activity and visually engage the students, from college students through middle school girls. She and her teammates collected data on the responses to the activities and Kamilah designed the poster to show the project outcomes in a visually creative poster, presented at the STARS Celebration Conference, (Arlington, VA, in August, 2014).

Over the past year, Kamilah has creatively approached extracurricular activities in many organizations. She has been a charter officer of the new GGC student organization, Women in IT @ GGC (WIT @ GGC), where she has applied her creative design talents to flyers and t-shirt designs that the women proudly wear. She contributes much more than simply the media designs, Kamilah also has really fresh publicity and collaboration ideas, as well. She continually invents ways for students to get together for official events and to just hang-out to support one another.

Most recently she has innovated, created and launched social media and publicity campaigns to encourage registration in Super Saturday Series. These were wonderfully successfully, boosting registration from an average of 25 attendees, to 40 and 61 attendees! Kamilah Kiser is an outstanding student, applying her creative talents in service, leading other students, and enhancing her abilities. She is very deserving of recognition with GGC’s Outstanding Student Creativity Award.


Our First Grace Hopper Scholar Awarded in 2015

Adrianna Valdiva, IT major, received a prestigious Grace Hopper Scholar award for 2015, the first such award to a current GGC student. She was sponsored by GoDaddy to attend Grace Hopper Conference (GHC) 2015 in Houston, Texas, October 14 -16, 2015. The Grace Hopper Celebration of Women in Computing is the World’s Largest Gathering of Women Technologists. For 15 years, Grace Hopper Conference has brought together the community of women technologists, the best minds in computing and increased visibility for the contributions of women to computing. The conference is produced by the Anita Borg Institute and presented in partnership with Association of Computing Machinery (ACM).

The conference stimulates collaborative proposals, networking and mentoring for attendees. The conference presenters are leaders in industry, academia and government. The conference also offers professional development and job interviews. Adrianna represented GGC, as our first student scholar, and was flown to an internship interview, a follow-up up to the conference interview.
How important is food to a college campus and its community? Four years ago, Assistant Professor Dr. Paul Grant and other faculty from Georgia Gwinnett College partnered with the Lawrenceville Cooperative Mission Food Bank to establish a small garden on campus—with immense potential for growth—to meet their concomitant goals of providing fresh produce to food insecure families in Lawrenceville and engaging our student, faculty, and community volunteers. Since then, the garden has grown steadily each year, with 2015 being a substantial, record-breaking year in which over five hundred pounds of fresh vegetables were donated. In light of this year’s success, the garden’s mission is evolving and expanding to provide more opportunities for service learning, scientific research projects, and sustainability initiatives, which strongly embody GGC’s four pillars: Scholarship, Leadership, Creativity, and Service. Working in the garden provides GGC students with volunteer credit hours, which are reflected on their transcripts. “The garden has created a mutual goal for it and its student volunteers to develop student leaders in community service while providing a venue for them to pursue academic projects,” according to Dr. Grant.

In February 2016, Dr. Evan Prescott and Dr. Grant will enroll individual faculty and their classes in a campus wide effort to grow plants from seed. In April, as part of campus-wide Earth day activities, Get Involved GGC will host a mass meeting to march together to the garden for a planting event. This idea was incited by a recent conversation with the Chair of GGC’s Sustainability Committee, Assistant Professor Brigitte Clifton, in which she addressed the garden’s sustainability challenges. “Keeping students engaged enough to take care of its needs through the cycles of the academic year, over summers, and as they graduate or take on other challenges, without overtaxing the dedicated garden champions is a challenge for any volunteer effort,” said Clifton. “I’d like to see more classes using the garden for active learning modules that engage and help students apply what they’re learning to one of the oldest human industries, and one with which so many of us have lost connection.”

Faculty-led research and/or student-based ideas may converge in SST on the required internship or research project for all biology and chemistry majors in their senior year. Dr. David Pursell has a project idea to monitor soil chemistry as the garden soil improves over...
time with cultivation, and Dr. James Russell is interested in characterizing prevalence of Trichogramma parasitic wasps, which are widely used as biological control agents in horticulture. Dr. Evan Prescott noted that “A little imagination and creativity on the part of our students and faculty will reveal and help us all actualize a myriad of scientific research opportunities which are inherent in the interdisciplinary field of agriculture and horticulture.” Altogether, the garden and its team of individuals hope to broaden and deepen the conversation on campus and in our local community on the critical topics of quality food production and food insecurity. There is no shortage of literature or experts in agriculture admonishing us to reclaim our relationship with growing things if we are to solve the global crisis of feeding a burgeoning population. GGC and its home county of Gwinnett have grown rapidly in a short span of time, and thus this legacy will prevail under progressive leadership, which values sustainability and raising the standard of living for all life.

Biology Students Build Nest Boxes for Nuthatches

The brown-headed nuthatch (BHNU) is a small, non-migratory bird confined to the southeastern United States. Often identified by their call-which sounds like a baby’s squeaky toy- the BHNU is usually found way up high at the tops of pine trees. These nuthatches forage for insects on and underneath the bark of pines and use pine trees for roosting and nesting. Due to their reliance on pine forests however, since 1966 their population has been declining. The decline has been attributed to habitat loss caused by land development, urbanization and deforestation.

In an effort to help these lovable birds, GGC students from Maribel Fernandez’s Spring 2015 Conservation Biology class, with the help of volunteers from the Southern Wings Bird Club, built nest boxes specifically designed for BHNU. A total of sixteen nest boxes were placed on loblolly pines and hardwood trees in Gwinnett county: 10 on the GGC campus, 3 at Archer and Grayson high schools, and 3 at the Gwinnett Environmental and Heritage Center. Students collaborated to propose research questions and experimental design to determine optimal nest box placement based on the hypothesis that BHNU prefer pine trees, potentially located away from human activity. By the end of the semester, students discovered that one of the nest boxes located on the GGC campus was used by a pair of nuthatches. A total of five eggs were laid, all of which hatched and successfully fledged the nest. A second nest box on the GGC campus as well as a third nest box off campus were used by pairs of Carolina Chickadees. All students submitted their data to the Cornell Lab of Ornithology (CLO) which required that they become certified nest watchers, register their boxes at nestbox.org and follow the CLO data collection protocol.
that help increase the BHNU population in suburban settings, Conservation Biology students interacted with over 200 people at local schools and community groups to promote biodiversity awareness and BHNU nest boxes. Through these outreach efforts students raised enough money to pay for all of the nest box materials and make a donation to the Atlanta Audubon Society.

Two students from Fernandez’s Conservation Biology course have continued the project as independent research. Angela Monetta has been surveying and quantifying the diversity of birds on campus by listening to sound recordings placed near the locations of several nest boxes at GGC. Angela has also been contacting Gwinnett county high school teachers and principals for the spring community outreach project. Dustin Root will be starting his independent research in the spring, continuing with the conservation project and developing methods to genotype the birds using molted feathers. A third student, Will Whisenant started independent research this fall and will continue in the spring semester as well. In addition, Monetta and Fernandez met with faculty and students from Georgia Perimeter College, who came to campus to learn about the BHNU project.

This spring Fernandez’s Conservation Biology students will again place BHNU nest boxes both on and off campus. Students will compare a brand new nest box design to the boxes used last spring. “Instead of using wood from a hardware store, we will carve the boxes out of repurposed pine snags.” said Fernandez. A recent, unpublished study comparing nest box types suggests that brown-headed nuthatches are 8-10 times more likely to use a carved box. “We hope to increase the number of nesting nuthatches this year from 20% up to 80% of the boxes we place.” Fernandez added.

Honors Students Build Electric Vehicle

Assistant Professor of Physics Dr. Ted Forringer and students enrolled in Physical Sciences for Honors Students are building an electric three-wheeler. The idea for the class was conceived a few years ago when Dr. Jen Wunder, director of GGC’s Honors Program, asked Dr. Forringer, “What is your dream course? If you could teach anything at all, what would it be?” Ted thought back to the days when he taught engineering students enrolled in senior design courses and remembered how enjoyable and rewarding it was. He also thought about his experience converting a motorcycle to electric power and his interest in encouraging alternatives to petroleum for personal transporta-
tion. Dr. Wunder had originally asked Ted about the “class of his dreams” in part, because she wanted to create a project based learning course to fulfill core general education requirements for students in the Honors Program. “Now I have a group of mostly freshman non-science majors and am leading them through the design, fabrication and testing process that is usually reserved for senior engineering students,” Dr. Forringer said.

Designing and building an electric vehicle teaches students, in a hands-on and exciting way, basic concepts of physics such as velocity, acceleration, force, work, energy, power, and electric circuits. Dr. Forringer has found students appreciate the hands on approach and the interest level in the course has been very high. Interviews with students confirm this statement. Many have commented that they like the teamwork aspect of the class and enjoy the hands on approach, as opposed to “just repeating facts from a slide show or textbook.” Students also appreciate the uniqueness of the course. Ryan Peyton said, “I like that you get to try something new each class period. The class is never boring because you are always looking ahead towards the next challenge to conquer.” Another student added, “This class forced me to think on my feet, adapt quickly, and be creative, and all of those things have taught me a lot.”

Physical Science for Honors Students is a two-semester sequence so students will be able to continue the project in the spring. “In the spring we will focus on measuring the performance of the electric bike and making improvements,” Ted said. Reflecting on what has been accomplished so far one student said one of the most exciting aspects of the class is “being able to see progress on the bike week after week. This bike started as pieces of metal and every week it gets a little more awesome.” Dr. Forringer said that he would love to teach this course format in future years, but because it is more expensive to teach, it will need the continued financial support of the School of Science and Technology and the Honors Program. “This has been the most fun I have had teaching in a long time. I’m really excited and proud of what we have accomplished this semester,” Dr. Forringer said.
In April 10, 2013, GGC signed its first memorandum of cooperation with a foreign institution, Thai Nguyen University of Technology (TNUT). A cooperation, that went even beyond the vision and dreams of the two leaders that initiated and signed it - Dr. Kaufman (the GGC’s first president and president at that time) and Dr. The Quang Phan (the rector of TNUT).

In the next two short years, a series of exciting and fulfilling exchanges occurred. First, GGC faculty from the School of Science and Technology (SST) visited the TNUT campus and taught mathematics classes there. Then in May 2015, TNUT hosted the first Calculus and Tropical Biology, a faculty led Study abroad program in Vietnam. In the month long program, ten GGC students took Calculus and Biology classes with their counterparts in Vietnam and in the process immersed themselves in the culture of the South-East Asian country and formed deeper respect and appreciation of its people, traditions, successes and struggles. In a post trip reflection meeting with the GGC’s current president Dr. Preczewski, the student participants in the study abroad reflected: “It was a grueling experience for both the body and the soul, while we fought through the heat, the classes’ intensity and the frequent travels. But it is so fulfilling in retrospective, once we completed it and came home. The stuff that we learned, the stuff that we saw, the stuff that we experienced makes you aware, makes you grow, makes you understand and appreciate others. And we cannot stop sharing the experience with our family and friends, we are so ready to do it again! It was AWESOME!”

In a turn to show the American and Georgian hospitality and success and to influence others with the original institutional and educational concepts and achievements of GGC, our college, with the leading engagement of SST, extended an invitation for three science faculty from TNUT to visit our campus in Fall 2015. Thus, Mrs. Hue Thi Tran, Mrs. Trang Minh Nguyen and Mr. Hai Trong Ngo, all from the Division of Natural Science, Faculty of International training at TNUT, found themselves in a three month long visit at Georgia Gwinnett College, that started on September 1, 2015. And what a treat of a visit! By the time the program ended on November 30, 2015, they shadowed the classes and interacted with over 35 GGC faculty and staff on campus. The classes varied from the expected Calculus series, Differential equation and Physics and Earth Sciences, to Biology, Exercise science and Social Psychology. The visiting faculty also sat on series English courses taught on campus to improve their English. The GGC faculty took them on academic and non-academic trips from as close as Gwinnett Water Treatment plant and Georgia Aquarium to as far as the North Georgia Mountains and Panama City beach.

When asked to elaborate on the similarities and the differences between the two universities the Vietnamese reacted: “The schools are roughly the same size, both in terms of student populations and campus size. Also, both schools are trying hard to develop and implement methods that are student centered. The differences that one can notice instantly are the horizontal (one dean, no departments) administrative structure at GGC and the small class sizes at GGC (especially when compared with the 50 to 100 student classes in TNUT)”.

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Each of them added, when asked what motivated them to participate into the program and what are they taking back:

Hai Ngo: “I wanted to improve my English, to experience a new teaching method as well as student lifestyle at GGC that is different from mine and to experience new cultures and traditions. There are a lot of things you have in GGC that we don’t. For example, GGC always try their best to provide students with the modern facility, allowing them to work with up-to-date equipment and methods. GGC library is a good example for us to follow.”

Trang Nguyen: “I also wanted to improve my English and observe new teaching techniques. Hard to say which is the most interesting experience for me: a field trip to Atlanta aquarium with a biological class, or go to water plant with another class where students can see the fascinating combination of biology, chemistry, engineering, mathematics and computers. All that made me understand how important for students to see in practical world what they are studying in textbooks”.

And Hue Tran concluded: “I also had the same reasons as my colleagues, but I want to add two more important points that I have observed. First, the student and faculty population at GGC are very diverse. Second, the professors and the students have strong interactions with each other, both in class and out, because of small class sizes. So, professors can understand their students and what their needs are in the lectures. I will use this model in my own classroom at my university, by breaking the classes in groups.”

On the request to give their final thoughts of the experience Trang noted: “I gained valuable experiences here in GGC, about advanced teaching methods, about cultural differences, about developed education, which I definitely keep in mind as a unbelievable journey in my life. Thank you GGC for being a generous and caring host” and while Hue was nodding in agreement, Hai Ngo added: “I cannot find enough words to express my gratitude to those who have designed this program! Since at GGC, I have learned so much and most importantly, my teaching methods, my thoughts have developed enormously and critically. Folks, I will always and forever hold you in my heart!”

“You are all Generals” added all of them laughingly while packing their suitcases with the GGC memorabilia, small presents for friends and family and little pieces of memory that they will carry back and misplace in some drawer in the near future. But the most important pieces, that will be always there, those little pebbles of knowledge, understanding and appreciation of the American academic and social culture, planted by us in their hearts and minds will soon create the GGC, Georgia and USA ripples in their society as they got home, while we look at their tiny ripples in ours.

We also thank you for coming our friends. We are GGC!
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