

Felton Jenkins, Jr. Hall of Fame Faculty Award Portfolio

Dr. Hasitha Mahabaduge

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To the members of the Regents' Felton Jenkins, Jr. Hall of Fame Faculty Award:

Please accept this letter of support for **Dr. Hasitha Mahabaduge** as Georgia College & State University's nominee for the **Regents' Felton Jenkins, Jr. Hall of Fame Faculty Award**. Dr. Mahabaduge is an Assistant Professor of Physics in the College of Arts and Sciences. He is an outstanding teacher and was Georgia College's 2019 Teaching Excellence Award recipient.

In Spring 2019 Georgia College sent a team of students to compete in the first GAInventure Competition organized by the Georgia Chamber of Commerce. During that time, I had the pleasure of working with Dr. Mahabaduge as his students represented Georgia College in the competition showcasing their innovative solar charging station. During that time, I witnessed Dr. Mahabaduge's commitment to teaching and mentoring firsthand. Soon after the competition he started making plans to prepare our college for the next years' competition and in Fall 2019 is offering an interdisciplinary research course targeting the competition. This particular course is a voluntary course overload for him and every academic year he has taught at least one voluntary course overload. This speaks volumes for his dedication for teaching and his caring nature for his students.

Dr. Mahabaduge's work engages his students at every level. He is passionate about his teaching and sharing his research with his class. One of his earlier projects, based upon a student's request, has been to engage students in the process of creating a solar-powered golf cart. His efforts, with his students, has drawn regional and national attention while engaging students in the very work they are studying to perform once they graduate. Dr. Mahabaduge's work serves as a model for extraordinary teaching and has drawn students from around the state.

Dr. Mahabaduge's courses are innovative and supportive for his students. He incorporates real-world learning opportunities followed up by hands-on activities. Activities, such as the retrofitted golf cart, are able to apply many of the concepts students are studying in his physics classes. He prepares students to learn about and take on the tasks they would be performing in their future jobs while also incorporating the theory and literature behind the why of those tasks. When given the

opportunity, Dr. Mahabaduge reached out to a local elementary school for his students to provide instructions to elementary students. The results were positive comments from his students and the students they taught. The feedback and success of that project demonstrates the lasting impact Dr. Mahabaduge has on his students and those they serve in their own teaching. In the latest event, Dr. Mahabaduge and his students conducted a day-long workshop with 75 elementary school students. What started as a 2-hour workshop has grown into a day-long workshop funded through grants and receiving accolades and promotion through various media outlets, including the local NBC station. This is just one example that demonstrates how far his passion for teaching goes.

Another example of how Dr. Mahabaduge reaches his students is his participation in undergraduate research. Throughout his portfolio, examples demonstrate his drive to partner with his students in the process of research. He takes the teaching process beyond the classroom and mentors eight to ten undergraduates each year. Dr. Mahabaduge incorporated undergraduate research into a Research Experience for Undergraduate - NSF grant he had received and that student was able to work with researchers at the University of Nebraska – Lincoln. His emphasis on critical thinking and application of the theory positions Georgia College's students in good stead as they prepare to take on such roles in their careers. His passion for their learning knows no bounds. He has collaborated with the Center for Teaching and Learning, the library, students, and other colleagues to improve his instruction, stretch his knowledge, and provide the best instruction to Georgia College students possible.

The attached portfolio provides strong evidence that his efforts have a lasting impact on his students and they continue to stay connected with him, even after they have graduated and moved on from Georgia College. Letters from former students point to the level of impact of the program and Dr. Mahabaduge's assignments have had on alumni and their work. Student evaluations of Dr. Mahabaduge's teaching rate him as a strong instructor across the board. Graduates of the program tout the deep connection between the assignments they completed and the work they perform today. Finally, it is apparent that his colleagues and fellow faculty members have the highest regard for Dr. Mahabaduge. His portfolio contains letters of support from Dr. Ken McGill, former Chair of the Chemistry, Physics, and Astronomy Department, Dr. Cynthia Alby, Professor of Secondary Education and Director of Georgia College Journeys, Dr. Doreen Sams, Faculty Coordinator for Mentored Undergraduate Research and Creative Endeavors for Georgia College, Dr. Mary Carney, Director, Programming in Faculty Affairs for the University of Georgia, and current and former students. I believe that Dr. Mahabaduge is an outstanding candidate for the **Regents'**

Felton Jenkins, Jr. Hall of Fame Faculty Award.

Sincerely,

A handwritten signature in blue ink, appearing to read "Costas Spirou". The signature is fluid and cursive, with a prominent initial "C" and a long, sweeping underline.

Costas Spirou, Ph.D.

Provost and Senior Vice President

February 22, 2019

Dear Members of the Excellence in Teaching Award Committee,

It is my pleasure to nominate Dr. Hasitha Mahabaduge for the 2018-19 Excellence in Teaching Award. His caring nature as an educator, his successful teaching pedagogies, his contributions to strengthening our physics program curriculum by developing three new courses, the community outreach activities he conducts as part of his coursework, and his unending quest to learn and implement new teaching techniques make him an excellent candidate for the Award for Excellence in Teaching.

Over the past three years, Dr. Mahabaduge voluntarily taught one course overload every year. On all three occasions, he volunteered to teach these courses solely because students requested him to teach them. For example, in Fall 2016, our graduating seniors requested a renewable energy course out of a desire to learn and develop the necessary skills to enter the growing field of renewable energy. To address their needs, Dr. Mahabaduge developed and offered the course Physical Principles of Renewable Energy. He did the same in 2017 and 2018 and taught two more courses just to help students graduate on time. He taught these courses on top of his regular 4/4 course load. In my opinion, this demonstrates that he cares for his students and goes the extra mile to help them. His caring nature is a recurring theme in student evaluations as well. Below, I quote one of the student comments that reflects this great attribute of him as an educator.

“The professor seemed to genuinely care about his students and wanted them all to succeed. If there was a student that did not understand a concept, the professor tried several different methods and approaches to help not only the confused student, but the entire class in general to better understand topics. He made a potentially dreadful class much less so by always having a great attitude and knowing when to make physics related jokes or physics related real world experiences, which really made the class more enjoyable.”

Dr. Mahabaduge joined Georgia College with a strong research background. He has found ways to successfully integrate research into course work to share his expertise not only with his research students but also with all students who take upper level courses with him. Some of his students (not research students) have presented their course work research both local and regional conferences, including Georgia College Student Research Conference, Georgia Undergraduate Research Conference, and Southeastern Section of the American Physical Society meeting. It is worth mentioning that the retrofitted solar golf cart research project, which gained regional and national attention, was initiated as a research project for one of his classes (https://www.cur.org/georgia_college_students_use_summer_sun_to_power_golf_carts/). This Fall, he also co-presented one of our Center for Teaching and Learning Workshops on "Integrating undergraduate research into a course and across the curriculum." Dr. Mahabaduge also collaborates with our librarians to teach our students necessary skills in information literacy. He started this collaboration as part of his Russell Library Fellows program but continues it due to the benefits gained by his students.

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University System of Georgia*

So far, Dr. Mahabaduge has developed and offered three new courses: Solid State Physics, Thermodynamics, and Statistical Mechanics, in addition to his course in Renewable Energy, to make our physics curriculum on par with the physics curricula throughout the rest of the country. He is also a member of the physics curriculum committee. The committee recommended making two more courses: Advanced Electricity and Magnetism and Advanced Quantum Mechanics required for graduation. This change, along with the new courses taught by Dr. Mahabaduge, make our graduating students well prepared for continuing their graduate studies. Specifically, the Thermodynamics and Statistical Mechanics (and Electricity and Magnetism) courses he taught had a significant impact on students' scores in their GRE Physics test.

In Fall 2016, Dr. Mahabaduge started a renewable energy workshop series to local elementary school students and part of his Physical Principles of Renewable Energy course. This workshop gained much interest from the teachers of the local elementary schools, and he has offered it every year since then (<https://frontpage.gcsu.edu/article/news/power-fun-physics-students-energize-science-elementary-school-kids>). He makes this part of the course work for capstone courses he teaches and makes it relevant for both elementary school students as well as our students by picking a theme that matches the respective capstone course.

One of the best things I like about Dr. Mahabaduge is he models himself not only as an educator but also as a good learner. He was part of the University System of Georgia Scholarship of Teaching and Learning (USG SoTL) fellows program during 2017-2018, he is part of the GC active learning fellow cohort for the 2018-2019. He has presented several times in regional, national and international teaching and learning conferences. One key thing I would like to highlight here is that he presented twice with his students in the USG Teaching and Learning Conference in 2017 and 2018, and once in the SoTL Commons conference in January 2019.

I would also like to add that as one of the experimental physics researchers in the department, Dr. Mahabaduge maintains an active research group mentoring 8-10 students every year. Over Summer 2018, he also mentored two high school students. His students' research presentations have also won recognition and awards (<https://frontpage.gcsu.edu/announcement/physics-major-wins-honorable-mention-poster-competition-energy-summit>)

Dr. Mahabaduge is clearly an inspiration for both his students and fellow faculty, and I sincerely believe that he deserves to be recognized for the excellence in his teaching.

Respectfully



Dr Ken McGill
Chair Chemistry, Physics and Astronomy Department
Georgia College

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February 17, 2019

Dear Awards Selection Committee,

It is my pleasure to write a letter on behalf of Hasitha Mahabaduge for the Excellence in Teaching Award. Dr. Mahabaduge recently completed the semester long course, "Design for Transformative Learning" (DTL). This course met 2 hours per week face to face with an hour or more of work on course design outside of class. The primary goal of the course is that participants create an innovative, engaging and meaningful course designed to a) help students understand the course content as deeply as possible b) allow students to remember and apply key concepts even years later, and c) develop agile thinkers with broadly transferable essential skills. I was particularly impressed with the individuals who were in Dr. Mahabaduge's section of the course because, not only were they willing to be the first cohort to take a course requiring this level of time and dedication, they were willing to do it on Friday afternoons from 3:30-5:30! Now THAT is real dedication to the art and craft of teaching!

As a result of this course, Dr. Mahabaduge now has a solid vision for a new version of "Principles of Physics II" along with a variety of materials such as course goals, a dilemma, issue or question to guide the course, an introductory letter to students, and sample lesson plans and activities. He has also developed an authentic assessment using the performance task framework and learned UNLV's "Transparency in Teaching and Learning" protocol to increase the chances of student success on assignments. Furthermore, he is now prepared to "flip" parts of a course when that is a viable option, and he is developing a signature pedagogy for the course based on the concept of physics tutorials. After teaching this course for a semester or two to tweak it, it should be at the level of a publishable course that could be shared and used by others nationwide.

The DTL course also focuses on helping students develop skills that will benefit them throughout their time in school and across their lives and careers. For example, Dr. Mahabaduge is now prepared to help students improve their ability to learn, process, and review and also help them develop persistence, academic mindset, and grit. But perhaps most importantly, he is one of the first faculty members at Georgia College to focus on teaching a transferable essential skill in a way that will allow the students in the class to acquire that skill in such a way that they can apply it not only to the topic at hand but also to a wide variety of other topics and situations. The essential skill he has chosen to focus on

for this course is quantitative literacy. Hopefully his course can serve as an exemplar as we work as a university to ensure that all courses develop essential skills in this way.

But Dr. Mahabaduge's teaching excellence isn't confined only to the classroom. GC Journeys featured the work of one of the students he mentored as part of a "mentored undergraduate research" project in one of our videos. Of all the examples of mentored research on campus, we knew his project was particularly exciting for many reasons. First of all, it beautifully exemplifies the criteria for high quality mentored research. Secondly, the project wasn't just purely theoretical but made a practical contribution to sustainability efforts on campus. But perhaps most importantly, the student representative from that research team couldn't hide his incredible enthusiasm for the project, and his ability to explain the project in detail was extraordinary. That enthusiasm and that student's ability to explain in such detail – those speak volumes about the quality of Dr. Mahabaduge's teaching.

Dr. Mahabaduge's devotion to developing the pedagogy of physics is extraordinary. He is starting with this focus in a serious way at such a young age that I wouldn't be surprised if he is able to become one of the foremost authorities on this subject. In future semesters, he will be helping me teach the DTL course, specifically the sessions on developing peak performance and flipping the classroom.

Sincerely,

A handwritten signature in cursive script that reads "Cynthia J. Alby".

Professor of Secondary Education
Director of GC Journeys



Mentored Undergraduate Research & Creative Endeavors (MURACE)
A Division of the Center for Teaching & Learning
Library Room 375
Milledgeville, GA 31061
478-445-0966

February 11, 2019

To Whom It May Concern:

Re: Faculty Teaching Excellence Award Nominee for Hasitha Mahabaduge, Ph.D.

It is my honor as the Faculty Coordinator for MURACE to write this letter supporting Dr. Mahabaduge for this great award.

A significant difference between an excellent classroom teacher and an excellent teacher is Dr. Mahabaduge. He exemplifies the "excellence in teaching beyond the classroom." The time he spends beyond classroom lecture time is not because he gets paid to mentor students beyond the classroom it is because he is an excellent teacher. He mentors students and seeks out opportunities for his students to present their research at conferences, gain summer research funding (e.g., MURACE and REUs), and secure quality competitions where students can demonstrate their knowledge and learn from others. Dr. Mahabaduge also conducts and presents pedagogical research at conferences such as the USG Teaching and Learning Conference. He serves as a Councilor for the Council on Undergraduate Research for the Physics Division where he shares and gains knowledge that he brings back to GC Physics students. He serves on the Professional Learning Committee for MURACE where he shares and gains valuable knowledge to move GC students successfully through and beyond their GC Journeys. He prepares students for both the work world and graduate school.

As Georgia College & State University (GC), embarks on its GC Journeys' Program (High Impact Practices), having Dr. Mahabaduge as a contributing faculty member makes the journey to success for GC students interested in engaging in undergraduate research possible. Since joining GC, Dr. Mahabaduge has demonstrated a remarkable commitment to mentoring undergraduate research. The following are some examples of his dedication that I have personally observed that reflect the attributes of an excellent teacher.

Involvement outside the classroom:

- 1) REUs - conducted research along with his GC undergraduate student at the University of Nebraska Lincoln in 2017 - not only did he work with his student, but his collaboration was a game changer for the students. It is remarkable that an undergraduate student is a beneficiary of an opportunity from a grant. His inspiration helped Nowsherwan Sultan to gain a clear vision for his future educational direction. However, Dr. Mahabaduge's connection to REUs does not end there. He inspired another undergraduate to apply for an REU program for the summer of 2018.
- 2) Grants - wrote grant to purchase equipment for the laboratory he developed at GC - It is wondrous to have a new faculty member so willing and able to support undergraduate research; however, to start a lab and find funding to purchase much-needed equipment within his first year is remarkable. The presence of the lab provides students with the opportunity to conduct exceptional research that is conference and journal worthy.
- 3) Service to Students - When I approach Dr. Mahabaduge about serving on the GC Student Research Conference and GURC Conference Committees, and GURC Posters at the State Capitol; his response was "yes" not let me think about it. The various committees carry responsibilities such as reviewing abstracts, preparing presentation schedules, handling conference logistics, marketing the conference, selecting quality research for the COPLAC Conference, and much more. Further, in 2017, when asked if he would accompany ten students who were selected to present their research at the Council on Public Liberal Arts Council (COPLAC) Conference, once again the response was yes. That informed yes, meant meeting with the students prior to the conference, traveling to a not so exotic location, instead to "Wise Virginia", giving up his weekend, attending the presentations, networking with other COPLAC faculty and administrators as a representative of GC MURACE, and after the conference communicating with MURACE to share insights and outcomes from the conference. His teaching excellence can be seen through his contributions to his students by mentoring, preparing, and accompanying them to participate in discipline specific and interdisciplinary conference (e.g., COPLAC, GURC, NCUR). Through his work by contributing to these organizations, he assures the quality that is

expected by an excellent teacher exists within each, and through sharing these informed opportunities with his students and mentoring his students he exemplified an excellent teacher.

- 4) Member of the MURACE Professional Learning Committee - As part of the MURACE Professional Learning Community (PLC), Dr. Mahabaduge has made significant time and work contributions to the new GC Journeys initiative. In his role he worked with a team to identify undergraduate research (UR) best practices models, cull through journal articles to find the top articles needed to provide direction to the initiative, assisted in determine the most appropriate Essential Learning Outcomes for GC Journeys to pursue, identify assessment tools all in an effort to map a pathway to success for our UR students. From his continuing work, he brought the idea to the team of presenting the work at the CTL Conference in Athens Georgia in April. 2018. His enthusiasm was and is infectious, and the team agreed to coauthor the presentation. What Dr. Mahabaduge presented represented the quality of teaching that he and the team members exemplify at GC.
- 5) GALA poster presenter - in 2017, it was my privilege to identify ten exception undergraduate researchers from across the GC campus to present at the GC GALA (capital funding campaign event). Dr. Mahabaduge's student was selected as one of the ten. Dr. Mahabaduge worked tirelessly teaching his student to present in the way needed to communicate research to university donors, potential donors, and politicians who may or may not understand the technical language of the discipline. This ability is quite a feat for anyone let alone an undergraduate researcher in the sciences. Therefore, Dr. Mahabaduge had his job cut out for him. He did an excellent job. He stayed by his student side to assist when needed during the presentation time and then spent time during the meal sharing his discipline's research initiative and his students' potential as future physicists and researchers as well as the benefits UR brings to GC.
- 6) CUR Councilor Physics Division - Dr. Mahabaduge is a CUR Councilor in the Physics Division. By being nationally elected to this position is a clear indication that other CUR Councilors were able to see the greatness he brings to national UR efforts. His intellect, skills, love of teaching, and enthusiasm for undergraduate research goes well-beyond the walls of our university.
- 7) NCUR – since the beginning of his time at GC Dr. Mahabaduge has been a strategic part of NCUR, both through the mentoring of students to present at NCUR, but as a presenter in the Faculty Administrator Network (FAN). FAN sessions are very limited as to the number accepted, but because of the excellence he brings to mentoring outside the classroom he has been continuously successful in securing his rightful place as a presenter.

It is my great pleasure to work with this great person. I say, great person, because he is not just an excellent classroom teacher, but also a great mentor for undergraduate researchers, a great colleague, and a genuinely collegial person. Working with him and seeing his great works and dedication to students at multiple levels made writing this recommendation a pleasure. I hope that you agree and will award Dr. Mahabaduge the recognition of Excellent Teacher.

Sincerely,



Doreen (Dee) Sams, Ph.D.
Faculty Coordinator for MURACE
CUR Councilor Social Sciences
CUR Campus Liaison



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Office of the Senior Vice President for
Academic Affairs and Provost

Office of Faculty Affairs

22 October 2019

Felton Jenkins, Jr. Hall of Fame Faculty Award Committee
University System of Georgia
270 Washington Street, S.W.
Atlanta, GA 30334

Dear Members of the Committee,

As a co-director of the University System of Georgia (USG) Scholarship of Teaching & Learning (SoTL) Fellows Program, I am pleased to write this letter in support of Dr. Hasitha Mahabaduge for the Felton Jenkins, Jr. Hall of Fame Faculty Award. The USG SoTL Fellows program was created to foster and support a community of learners from across the USG who meet over the course of a year to design and implement a classroom-based research project.

In looking over the criteria for this award—1) use of effective teaching strategies, 2) strongly committed to teaching and learning, and 3) commitment to fostering academic success of students—it is evident that SoTL cuts across the boundaries of all three of these qualities. In my work with Dr. Mahabaduge as a 2017-2018 USG SoTL Fellow, I likewise saw evidence of how his philosophy of teaching-as-research cuts across these boundaries. In Dr. Mahabaduge's own words, "Teaching as Research involves systematic and reflective use of research methods to develop and implement teaching practices that advance the learning experiences and outcomes of students and teachers."

The topical focus of the 2017-2018 USG SoTL Fellows cohort was American Association of Colleges & Universities' (AAC&U) Liberal Education and America's Promise (LEAP). LEAP is a set of practices, tools, and ideals designed to prepare students for the 21st century workplace by creating engaged and informed citizens who are capable of higher levels of learning as well as strong intellectual and practical skills. Dr. Mahabaduge's work with the USG SoTL Fellows led to a number of projects that incorporated principles of LEAP into his courses, including such High-Impact Practices (HIPs) as signature work and capstone projects. His USG SoTL Fellows research project, "Impact of integrating undergraduate research and students' signature work into coursework on student learning," demonstrates a contribution to the national LEAP project. The quality of his work with the USG SoTL Fellows is evidenced in the three oral presentations and one poster presentation that he completed, an impressive number for a year-long program.

Dr. Mahabaduge's approach with LEAP promotes students' signature work, a substantial cross-disciplinary project in a topic significant to the student and society. In two upper-level physics courses, he integrated hands-on research and community-based projects designed to let students pursue their own signature work, applying the knowledge they gained from the course. This kind of project promotes student motivation and mastery, two elements of deep learning. The students retrofitted a solar powered golf cart and conducted renewable energy workshops for elementary schools as part of their course work. Linking the real world to the book work of physics is a hallmark of teaching excellence through the integration of research, teaching, and service -- both for the professor and the students. This course and assignment design and his hands-on approach exemplify sophisticated instructional practices that tap into students' curiosity and creativity, ultimately producing integrated learning in a socially-relevant context.

Dr. Mahabaduge's research examines the impact of signature work with intentionally integrating undergraduate research (one of LEAP's HIPs) into course work on student learning and employability. He helps students as they bridge the college and work divide by including them in real-world experiences. For instance, he and a student co-presented at the 2018 USG Teaching & Learning Conference, with the student sharing on his experiences one year after graduation and the impact of having completed a signature work as part the course. Dr. Mahabaduge's professional support for students in his classes and his lab create enduring working relationships.

Dr. Mahabaduge's teaching excellence is evident not only in innovative, evidence-based teaching but also extends to sharing how faculty development can enrich teaching. He presented with his peers at the 2018 USG Teaching & Learning Conference a session entitled, *SoTL Communities of Practice for Research on Teaching and Learning*. He is a rising star in Georgia's active SoTL community. Further, he was an exemplary member of the learning community and was generous with his colleagues in sharing his already significant knowledge of the intersection of teaching and research.

As a director of the USG SoTL Fellows program, I had the privilege of working with outstanding faculty from across the state. Dr. Mahabaduge is exceptional among this group, and he is exemplary of the highest level of integrating research and teaching to achieve greater student outcomes.

Sincerely,



Mary A. Carney, Ph.D.

Director of Programming in Faculty Affairs, University of Georgia
Co-Director, SoTL Fellows Program, University System of Georgia

Midway Hills Primary School

Baldwin County Board of Education

A Charter System of GeorgiaDOE

375 Blandy Road

Milledgeville, GA 31061

Tara O. Burney
Principal

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Asst. Principal

Ph: (478)457-2495 Fax: (478)457-2499

Regents' Felton Jenkins, Jr. Hall of Fame Faculty Award Committee,
University System of Georgia.

October 12, 2019

Dear Members of the Committee,

I am writing this letter in support of Dr. Hasitha Mahabaduge who is an applicant for the Excellence in Teaching Award. In 2016, my son, Matthew Pearson, was taking Dr. M's Physics of Renewable Energy course, and he asked me if it was possible for his class to do a project with my elementary gifted students. Together, the three of us planned and implemented a Renewable Energy workshop for my 3rd, 4th, and 5th graders. Dr. M's college students were "teachers" to my elementary students. I was so impressed with how his students were able to break down complicated topics to an elementary level. They had presentations, games, and hands-on activities that taught my students about the energy grid, solar power, wind power, and the need to discover sources of renewable energy for the future. It was a great success! I was so pleased and surprised when Dr. M reached out to me the next year to repeat the project even though my son had graduated. My school had changed to a primary school, so my students were first and second graders, but Dr. M was confident that his students would be able to adjust for this age group - and they did! In November 2018, we completed our third Renewable Energy workshop at GCSU. One of the most exciting things that happened in our recent workshop was hearing how much my 2nd graders remembered from their experience in 1st grade and the quality of the questions that they asked.

I believe the reason that Dr. M's students are able to teach mine so well is that he is an excellent example of what any good teacher should be. He gives his students ownership and purpose and allows for thinking outside the norms. He contributes positively to the academic environment at both the college and elementary levels. His work with my students has made a significant impact on what happens in my classroom. For example, one group of 2nd graders is doing a science fair project about electricity conductors, and

while they were testing different objects, they began talking about different energy sources that they learned about in November. This speaks volumes about the effect these workshops have on my 7 and 8 year old students. My first graders are already excited about going back next year.

Midway Hills Primary School

Baldwin County Board of Education

A Charter System of GeorgiaDOE

375 Blandy Road

Milledgeville, GA 31061

Tara O. Burney
Principal

Terri Carty
Asst. Principal

Ph: (478)457-2495 Fax: (478)457-2499

I asked my son and my students to tell me what they thought of Dr. M and here are their thoughts:

“Really the most unique aspect of his teaching was the room he left for student agency. He pushed and supported us in our academic endeavors. The class wasn’t a predetermined path, but a structure we got to build with him. Our interactions with elementary students were a byproduct of our class discussions and the efforts of everyone involved. That sense of agency stands out amongst a lot of other classes.” Matthew Pearson

“I can tell you taught those kids lots of good things. And your college students taught me a lot of good things to- like how to help the earth...” Taylor, 2nd grader

“I think it was more fun to learn from college students.” Soren, 2nd grader

“You are the best teacher ever and your college students are amazing and they will grow up to be like you... The college kids they help us a lot because they got it from you.” Bella, 2nd grader

“I never thought that nuclear fusion could be so fascinating. I never thought that wind turbines could be in water!” Kiersten, 2nd grader

Dr. Mahabaduge has already been planning for our workshop this fall, and we’re hoping to extend the time to an all-day event because a 90-minute workshop is never enough time. The partnership that we have been building reflects his dedication to teaching all levels of students.

Sincerely,

Kimberly Pearson
Gifted Facilitator
Midway Hills Primary School

Hasitha Mahabaduge

Georgia College and State University
231 W. Hancock St, CBX 82
Milledgeville, GA 31061

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hasitha.mahabaduge@gcsu.edu
cell: 419-480-7532

EDUCATION

The University of Toledo, Toledo, OH, USA
Doctor of Philosophy, Physics, December 2013

The University of Colombo, Colombo, Sri Lanka
Bachelor of Science (Honors in Computational Physics), July 2007

PROFESSIONAL EXPERIENCE

Jan. 2016-present: **Assistant Professor**, Georgia College & State University, Milledgeville, GA
July 2019-Aug 2019: **Visiting Scholar**, Institute of Electrical Engineering Chinese Academy of Sciences, Beijing, China

June 2017-Aug 2017: **Summer Faculty Research Fellow**, Materials Research Science and Engineering Center, University of Nebraska – Lincoln, NE

Feb. 2014-Dec. 2015: **Postdoctoral Researcher**, National Renewable Energy Laboratory (NREL), Golden, CO

May 2009-Dec. 2013: **Research Assistant**, University of Toledo, Toledo, OH, USA

Aug. 2008-May 2009: **Teaching Assistant**, University of Toledo, Toledo, OH, USA

July 2007-June 2008: **Physics Instructor**, University of Colombo, Colombo, Sri Lanka

HONORS, AWARDS & FELLOWSHIPS

- 2019 - 2020 - Governor's Teaching Fellow
- 2019 - Georgia College & State University Excellence in Teaching Award
- 2019 - Honorary member of Eta Sigma Alpha, Georgia College & State University Honors Student Association
- 2018 - 2019 - Georgia College & State University Active Learning Fellow
- 2018 - Honored as the most respected professor during collegiate career, GC athletics
- 2017 - 2018 - University System of Georgia Scholarship of Teaching and Learning (USG SoTL) Fellow
- 2016 - The Russell Library Faculty Fellow
- 2015 - National Renewable Energy Laboratory Director's Award

GRANTS

- 2019 - Summer 2019 Faculty Scholarship Support Program (\$ 7,000)
Summer stipend to engage in disseminating scholarship in peer-reviewed publications
- 2018 – Georgia College, College of Arts & Sciences Faculty Development Grants (\$ 2,600)
Project: Solar Charging Station for Education and Research
- 2018 – Georgia College ENGAGE mini grant (\$ 2500)
Project: Connecting with the Community: Using Renewable Energy to Power Comprehension and Change

- 2018 – Georgia College MURACE Summer Research Grant (\$ 7500)
Project: Optimization of Solar Powered Golf Carts at Georgia College
- 2017 - Georgia College Student Technology Fee Grant (\$ 18,400)
Project: Magneto-optical Kerr Effect Measurement System for solid state research
- 2016 - Georgia College Student Technology Fee Grant & funding matched by the Department of Chemistry, Physics & Astronomy (\$ 60,000)
Project: Multi-source sputtering chamber for thin film deposition
- 2016 – Georgia College Faculty Research Grants Award (\$ 5,000)
Project: Spectrometer system for sputter deposition monitoring
- 2016 - Georgia College Student Technology Fee Grant (\$ 18,400)
Project: Hall-Effect Measurement System for thin film characterization
- 2016 – Georgia College, College of Arts & Sciences Faculty Development Grants (\$ 1,600)
Travel grant to attend the 1st World Congress of Undergraduate Research in Doha Qatar

PROFESSIONAL DEVELOPMENT

- Completed a semester long 3 credit hour course, “Design for Transformative Learning” Course (August 20, 2018 - December 14, 2018): The primary goal, of this course is to create an innovative, engaging and meaningful course designed to help students understand the course content and to develop broadly transferable essential skills.
- New Physics and Astronomy Faculty Workshop, American Association of Physics Teachers. College Park, MD. (November 2017): The workshop introduces the faculty members to effective and easy-to-implement interactive engagement teaching methods
- Georgia College ENGAGE Apprentice Cohort (2017): to develop and assess Community-based Engaged Learning (C-bEL) experience that aligns with the ENGAGE Learning Outcomes and incorporates intentional assessment of student learning.
- Participated in Scholarship of Teaching and Learning Program conducted by the Center for Faculty Development of Georgia College in Fall 2016.
- Participated in a NSF funded five-day workshop, “Summer Teaching as Research Institute for Post docs in Engineering” conducted by the Teaching Institute for Graduate Research Education of University of Colorado Boulder in July 2014.

RESEARCH INTERESTS

- Photovoltaic device fabrication and characterization
- Physics Education

PUBLICATIONS (Peer Reviewed Journals/ Conference Proceedings)

- 7 peer reviewed journal publications
- 28 conference proceedings and presentations (5 with undergraduate students)

SCHOLARSHIP OF TEACHING AND LEARNING (Conference presentations)

- 16 conference presentations in Teaching and Learning conferences within the past three years (6 with undergraduate student co-presenters, refer supporting doc. pages 18-20)

Reflective Statement

I learned about teaching by observing my father, who is a high school English teacher. He conducted tutoring sessions in the evenings at our home, and I used to sit nearby and listen. I was born and raised in Sri Lanka and English is not the first language in Sri Lanka. I observed how my father taught English to his non-native speaking students using role playing games and making most of his sessions interactive to engage students. Though I was leaning towards becoming an educator from a young age, the decisive moment of me becoming a teacher was my participation in a five-day workshop, “Summer Teaching as Research Institute for Post docs in Engineering,” held at the University of Colorado. This experience also gave me my mantra for teaching: Teaching as Research, which involves systematic and reflective use of research methods to develop and implement teaching practices that advance the learning experiences and outcomes of students and teachers.

A major hurdle in teaching Physics is to overcome the misapprehension that Physics is too hard to learn. When I walked into my classroom I faced the same conundrum my father faced years ago teaching English in Sri Lanka. Most of his students in Sri Lanka thought the same about English as my students thought about Physics, that it is too hard to learn. I started using the same tactics my father used and tried to make my classes more interactive. To do so I utilized my teaching philosophy, Teaching as Research. Since my first semester at Georgia College (GC), I have worked closely with the Center for Teaching and Learning to learn best practices in teaching and learning and implement them in my courses. For example, I used tutorials developed by the Physics Education Research Group at the University of Washington in my introductory courses. I modified some of the tutorials based on student feedback. These tutorials helped build students’ confidence, as indicated by one of the student’s comments in course evaluations: “Great teacher! I was scared coming into physics, but it ended up being one of my favorite classes. The tutorials he made were awesome and so helpful...” This practice helped my students to overcome the fear they had for physics. This method worked equally well in my introductory physics classes both for science and non-science majors. When I teach upper level courses, I strive to prepare my students for their careers by teaching the essential skills sought by employers, such as critical thinking written and oral communication, by integrating research into course work and using Community-based Engaged Learning techniques.

I believe continuous professional development and use of new technologies are necessary to be an effective educator. I became one of the Fellows in the GC Active Learning Fellows program, knowing that I needed to reevaluate my teaching techniques and leverage technology to complement the classroom experience in order to teach my Generation Z students more effectively. I was also one of ten University System of Georgia Scholarship of Teaching and Learning Fellows for the year 2017-2018, and now Governor’s Teaching Fellow for the academic year 2019-2020.

I conclude by sharing one of the comments a student wrote in the course evaluation, which sums up my teaching philosophy, Teaching as Research: “This course was very different from any course I have taken at GC in my college career... **He actively participated in learning with the students in a collaborative effort** which made the class much more interesting.”

Summary of Innovative Teaching Artifacts and Practices Used in the Classroom to Promote Student Success

1. Use of evidence-based teaching pedagogy

Research indicates significant improvement in student conceptual understanding of physics topics after instruction with *Tutorials in Introductory Physics* at the University of Washington, Seattle, Washington. I implemented this evidence-based teaching pedagogy in one of my introductory physics courses and observed a significant impact on how students perceive both instructor and the course as indicated by the highlighted rows under Student Evaluation Responses. I implemented this for the first time in Spring 2018. Average adjusted scores for Excellent Teacher and Excellent Course increased by 1.0 point on a 5.0 scale from Fall 2017 to Spring 2018 for the same course. This provides solid evidence for how the effective use of evidence-based teaching strategies can help educators better serve our students, especially in introductory physics courses where students walk in with a preconception of “Physics is hard.”

Student Evaluation Responses

Course (PHYS)	B. Excellent Teacher		C. Excellent Course		D. Average of B & C	
	Raw	Adj.	Raw	Adj.	Raw	Adj.
1111 Introductory Physics (Fall 2018)	4.1	4.0	3.9	3.7	4.0	3.9
4950 Thermo. (Fall 2018)	4.6	4.3	4.5	3.9	4.6	4.1
2211 Principles of Physics (Sp. 2018)	4.9	4.5	4.8	4.1	4.9	4.4
4950 Statistical Physics (Sp. 2018)	4.4	4.2	4.2	3.8	4.3	4.0
1111 Introductory Physics (Fall 2017)	4.0	4.1	3.6	3.8	3.8	3.9
2211 Principles of Physics (Fall 2017)	3.8	3.6	3.5	3.1	3.7	3.4
3100 Electricity & Mag. (Sp. 2017)	3.2	3.1	2.9	2.8	3.1	3.0
4950 Statistical Physics (Sp. 2017)	4.7	4.7	4.1	4.0	4.4	4.4

2. Intentionally integrating research and library instructions into coursework

In the information age, available electronic resources are often a barrier for students, as they have difficulty identifying information needs. To remedy this issue, I collaborated with a librarian to teach key information literacy skills to students to prepare them to seek out current and reliable information on the respective upper level undergraduate courses I teach. I also have successfully integrated research into coursework and have shared my success stories in both regional and international conferences. I am part of the Georgia College Professional Learning Community for Mentored Undergraduate Research and Creative Endeavors (PLC MURACE group). We conducted one of our CTL workshops during the Fall 2018 titled, “Integrating

undergraduate research into a course and across the curriculum." and presented at the University System of Georgia Teaching and Learning (USG T&L) Conference in 2018.

Relevant Teaching and Learning Conference Presentations

- Hasitha Mahabaduge, and Jeffery Dowdy, *Integrating Information Literacy into Coursework*, SoTL Commons Conference, Savannah-GA 27. (2019).
- Hasitha Mahabaduge, Karen Berman, Tsu-Ming Chiang, Kalina Manoylov, Kelly Massey, Doreen (Dee) Sams, *Undergraduate Research and Creative Endeavors: Lessons from a Professional Learning Community*, USG T&L Conference, Athens- GA (2018)
- Hasitha Mahabaduge, *Integrating Undergraduate Research into Coursework: A Project Based Approach*, International Society for the Scholarship of Teaching & Learning conference, Calgary-Alberta, Canada (2017)
- Hasitha Mahabaduge, and Jeff Dowdy, *Training the Next Generation of Renewable Energy Leaders by Integrating Research and Library Resources into Coursework*, 1st World Congress on Undergraduate Research, Doha, Qatar (2016)
- Jeff Dowdy, Hasitha Mahabaduge, Nancy Davis-Bray, *Re-integrating the library and the classroom through a "Faculty Fellows" project*, 28th GA COMO Conference, Athens-GA (2016)

3. Using LEAP signature work and C-bEL techniques

Recent research suggests that college graduates, across a variety of institutional types, are not well prepared for entering the workforce, which is problematic for both institutions of higher education and potential employers. The Community-based Engaged Learning (C-bEL) projects for upper level physics courses were designed to let students pursue their own signature work promoted by the Liberal Education and America's Promise (LEAP) initiative, applying the knowledge they gained from the respective courses. One of the example C-bEL projects my students do is the workshop for elementary school students on renewable energy. First it was done as part of the course, Physical Principles of Renewable Energy, and last year it was done as part of the Thermodynamics course I offer. These projects provide students with numerous opportunities to engage with hands-on learning in order to develop the critical thinking skills that are crucial to evaluate, synthesize and construct their own insights. According to the Association of American Colleges & Universities (AAC&U) 2018 employers survey, 90% of hiring managers consider being "able to effectively communicate orally" as the most important skill they look for in recent college graduates. In order to prepare my students to be competent communicators, irrespective of the course, all upper level physics students who take courses with me have the opportunity to do at least one scientific presentation. If the students are enrolled in a course where we conduct the renewable energy workshop for elementary schools, they will be doing two sets of presentations. One targeting an audience with physics background and the other at the level of elementary school students. All of these presentations are peer evaluated using Toastmasters International speech evaluation criteria.

I have presented my work involving LEAP signature work and use of C-bEL techniques in both regional and international Teaching and Learning conference and relevant presentations are listed under supporting documents.

Dear Members of the Awards Selection Committee,

I am a recent graduate of Georgia College, where I received my Bachelor of Science in Physics, and I was recently accepted into the Ph.D. program for Physics at the University of Tennessee at Knoxville. My time learning from and working with Dr. Hasitha Mahabaduge has been an essential part of my academic career, and I am honored to recommend him for this Award for Excellence in Teaching. When I first met Dr. Mahabaduge, I was in his Electricity & Magnetism course and I was the supplemental instruction leader for his Principles of Physics I course, a position I would maintain for three semesters. From the first of his classes I attended, I could tell he had a joy for teaching, highlighted by characteristics from his willingness to joke about physics to his ability to use physical laws as a life lesson. He has a clear desire to reach out to all students, evident from his almost stubborn attempts to ensure students have a clear understanding of each concept. As someone who hopes to one day become a physics professor, learning from Dr. Mahabaduge was extremely important in securing my desire and joy to teach.

In each course I have had with Dr. Mahabaduge, he has made it his mission to engage students as much as possible, going beyond lectures and exams by encouraging class discussion, which is almost unheard of in a STEM subject, and making research or community outreach programs a part of the coursework. In his Thermodynamics class, each student worked on and presented demonstrations on renewable energy to local elementary school students, which helped us see the application of the course material beyond problems found in a textbook. For his Advanced Electricity & Magnetism course, we did research on tandem solar cells, so that we saw the application of the photovoltaic effect. Not only did this help deepen our understanding of the course material, but we were able to present this research at two conferences, the Georgia Undergraduate Research Conference (GURC) and the annual meeting of the Southeastern Section of the American Physical Society (SESAPS). This was particularly helpful for me since the University of Tennessee was my first choice for graduate school and they hosted the meeting of SESAPS that year. I was able to present research to potential future faculty as well as network with those in their physics department. Dr. Mahabaduge's level of student engagement in the courses he offers demonstrates how invested he is in his student's learning beyond classroom.

Dr. Mahabaduge cares for his student's success, not only at Georgia College, but in their future endeavors as well. For those pursuing an advanced degree in physics, one of the largest obstacles is the GRE Subject Test in Physics. A notoriously difficult test, preparing for it takes months of practice and studying, which can add to an already stressful schedule as a college student. In the two upper-level courses I had with Dr. Mahabaduge, however, he incorporated GRE preparation into his coursework, which helped me to achieve a high enough score to be accepted into a competitive graduate program. I am extremely grateful to Dr. Mahabaduge for the care that he took to ensure that I was prepared for the next part of my academic career.

During my time as his student and working with him as a supplemental instruction leader, I have heard many times and experienced firsthand that Dr. Mahabaduge is an invested, caring, and excellent teacher.

Respectfully,
Aidan Burlison

James Dillon Vogt
Assistant Health Physics Specialist
Savannah River Nuclear Solutions
2/19/19

To the Awards Selection Committee,

I graduated from Georgia College in December of 2016 and was a student under Dr. Hasitha Mahabaduge for my final semester. Though I was only his student for one semester, the influence and impact on my academic and professional careers was monumental. Upon hearing that Dr. Mahabaduge was nominated for an Excellence in Teaching Award, I was honored to be asked to write a letter of support.

In the Fall semester of 2015, I was asked to be a part of a student panel to interview potential candidates for a new physics professor. One of the potential professors had spent some time working on solar cells, and wanting to go into the energy sector myself, I was immediately hooked on what he had to say. In addition to blowing us away at the interview and having the most interesting research proposals, he also brought an interesting teaching method. When we asked him questions, he wouldn't immediately explain to us the answer. Instead, he would ask a more basic question, use our knowledge on that answer, and then build up to the question we had just asked him. This caught us all by surprise as it juxtaposed the methods we had seen throughout the entirety of our academic careers. This was all within our first hour of meeting Dr. Mahabaduge. Already we had seen something extraordinary. He would go on to get the position and teach lower level physics classes the following semester, my final semester.

Not wanting to miss any opportunity to learn from someone who had worked with solar cells, I asked if he would teach a special topics class on Renewable Energy. Despite the work load he already had on his shoulders, he didn't hesitate from the first moment it was brought before him. In the same conversation, he was already running over potential material with me, and since it would be a one student class, was willing to share the textbook to help me even more. I had mentioned Dr. Mahabaduge's generosity to other seniors, and soon there were just under a dozen students in the class. His willingness to help one student in his interests had become an opportunity to influence everyone in the class with his teaching methods. With more students came more interests, and Dr. Mahabaduge was more than willing to indulge us.

Throughout the semester, we posed questions, and Dr. Mahabaduge would build up the foundation of knowledge that we already had before leading us to the conclusions we needed. He then took it one step further, giving us the responsibility of teaching certain subjects to the rest of the class. We created presentations in a scientific format to help our classmates understand the principles that we had spent a week researching ourselves. These presentations soon evolved as the class wanted to do something more. One student brought forth the idea of a research project: to make a solar powered golf cart for the college fleet. Another student wanted to do a presentation outside of the classroom. Never one to disappoint, Dr. Mahabaduge merged these two ideas. The solar golf cart became a cornerstone of the class, and we held an outreach day to the local elementary schools to bolster interest in science and renewable energies, teaching students what we had learned. Dr. Mahabaduge had found a science experiment that makes solar

cells out of berries and made that into something relatable the children would enjoy. It was an overwhelming success and continues to be something the college offers today.

Dr. Mahabaduge didn't stop caring for his students, even off the college campus. During the presentations, Dr. Mahabaduge saw potential within me to be a better presenter and public speaker. He approached me after class one day about looking into an organization dedicated to improving speaking and leadership skills. Once again, Dr. Mahabaduge went a step beyond and offered to drive me to the meeting, a 45-minute drive from Milledgeville to Greensboro. As a new member, I would need a mentor, someone who had been in Toastmaster's for a while, and someone who would be easy to contact and talk to. Dr. Mahabaduge stepped up immediately, and I couldn't refuse. He continued to give me a ride to Greensboro every other week, even after I had graduated, until it came time for me to leave Milledgeville. Contact didn't fall off with Dr. Mahabaduge even then, and the opportunities he allowed me continued to roll in.

Though I was only able to study under him for one semester, I have seen the impact he has had across the campus since I've been gone. The research groups he has are still strong and love what they're doing. The college still benefits from the solar golf cart and has recently increased the number of solar golf carts on campus. The elementary outreach program has gotten bigger and better each year and impacts the students as they continue into middle school and beyond. Dr. Mahabaduge takes the time and effort to make sure that each student leaves his tutelage better and brighter than when they first came to him, and in doing so doesn't just impact the student; he has had a massive impact on Georgia College and the surrounding community as a whole.

Thank you for taking the time to read this letter. To have summarized Dr. Hasitha Mahabaduge's work any shorter would have been not only a disservice to him but to Georgia College as well. There is no one I could recommend more highly for an honor like this.

Sincerely,

James Dillon Vogt

Supporting Documents

Intentionally integrating research and library instructions into coursework

The ability to know when there is a need for information, to be able to identify, locate, evaluate, and effectively and responsibly use and share that information for the problem at hand is defined as information literacy, according to the National Forum on Information Literacy. By integrating library resources and research instruction into the course, students were prepared to position themselves at the forefront of knowledge in fields that are rapidly developing. Students learned the iterative processes of researching, creating, revising, and disseminating information, while seeking multiple perspectives during the information gathering phase. Pre and post tests on information literacy show improvements in all 6 learning outcomes of information literacy (unpublished data, manuscript in preparation).

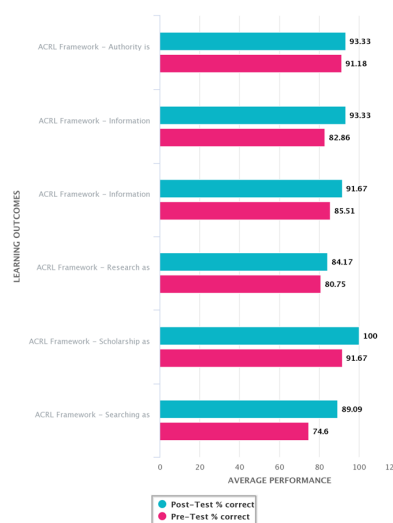


Figure 1: Pre and posttest data on information literacy for one of the upper level physics course

LEAP signature work and Community-based Engaged Learning (C-bEL)

Liberal Education and America's Promise (LEAP) promotes students' signature work to prepare students to complete a substantial cross-disciplinary project in a topic significant to the student and society. Most of the upper level physics courses I teach are designed with a focus on hands-on research and community-based projects. Retrofitting a solar powered golf cart is one of the classic examples of students' signature work as described in the LEAP initiative. The community-based projects for the courses are designed to let students pursue their own signature work, applying the knowledge they gained from the course.

Relevant Teaching and Learning Conference Presentations

(* indicates undergraduate student co-authors/presenters)

- Hasitha Mahabaduge, LEAP from Project to Product, International Society for the Scholarship of Teaching & Learning conference, Atlanta-GA (2019)
- Hasitha Mahabaduge, Impact of Community-based Engage learning: A Qualitative Analysis, International Society for the Scholarship of Teaching & Learning conference, Atlanta-GA (2019)
- Hasitha Mahabaduge, and Nick Palmer*, *Impact of Community-based Engaged Learning as a High Impact Practice*, SoTL Commons Conference, Savannah-GA 45. (2019)
- Nick Palmer*, and Hasitha Mahabaduge, *Community-based Engaged Learning: An Application of Renewable Energy Technology*, Bulletin of the APS, 62 (2018)
- Hasitha Mahabaduge, Nick Palmer*, Daniel Sexton*, and James Dillon Vogt*, *Impact of Students' Signature Work on Employability*, USG T&L Conference, Athens- GA (2018)
- Hasitha Mahabaduge, Anderson Kendrick*, and James Dillon Vogt*, *Students' Signature Projects: A Qualitative Analysis*, USG T&L Conference, Athens- GA (2017)
- Hasitha Mahabaduge, *Integrating Research into the Curriculum: Creating Opportunities for Students' Signature Work*, 31st Annual National Conference on Undergraduate Research, Memphis-TN (2017)

Mentored Undergraduate Research

Since I joined Georgia College, I maintain an active research group. My research students have presented their research at numerous conferences. I would like to highlight two of our achievements. During summer 2017, we received a highly competitive NSF-funded summer research opportunity to conduct research at the University of Nebraska – Lincoln. The solar golf cart project, which started as a class project, is now a fully funded research project. During Summer 2018, two of our undergraduate students and two high school students worked on that project. This particular project received regional and national attention and was featured on the USG webpage as well as the National Council of Undergraduate Research webpage.

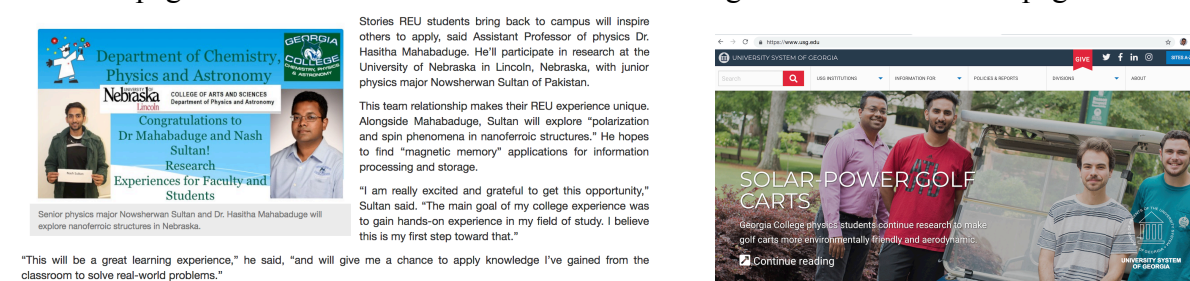


Figure 2: Two highlights of mentored undergraduate research: NSF REU, summer 2017 (left, source: frontpage.gcsu.edu) and solar powered golf carts research, summer 2018 (right, source: usg.edu)

Selected Undergraduate Research Presentations

(* indicates undergraduate students)

- Spencer Shortt*, Aidan Bursleson*, and Hasitha Mahabaduge, *Numerical Modelling of Tandem Solar Cells*, Bulletin of the American Physical Society, 62 (2018)
Nick Palmer*, and Hasitha Mahabaduge, *Improving Solar Cell Materials for a Sustainable Future*, Appalachian Energy Summit, Boone – NC (2018) **Honorable Mention Award**
- Kendall McDonald*, and Hasitha Mahabaduge, *Plasma Characterization in Magnetron Sputtering*, **Conference for Undergraduate Women in Physical Sciences**, University of Nebraska–Lincoln, (2017)

Beyond Georgia College...

In Baldwin County School District, Black/African American students account for 62% of the students, with White/Caucasian students accounting for 31%. We know that minorities are underrepresented in STEM fields, so projects such as renewable energy workshops for elementary school students allow them to access high-quality science education that is engaging and fun while also helping diversify the future of STEM.

Strides that are made today have the potential to leave long-lasting effects on generations to come. When I see the sparkling eyes of the elementary school students full of curiosity, awe and wonder, I feel that we are already making strides that will have a significant impact on our future generations



Figure 3: Pictures from the recent renewable energy workshop (source: frontpage.gcsu.edu)