ALABAMA SPACE GRANT CONSORTIUM

Journal of the
2015-2016
NASA ASGC Scholars and Fellows

UNDERGRADUATE SCHOLARSHIP,
TEACHER EDUCATION SCHOLARSHIP,
and GRADUATE FELLOWSHIP AWARDEES

Students from Alabama Congressional Districts
Dear Friends and Supporters of the Alabama Space Grant Consortium:

We are pleased to introduce 61 remarkable young men and women who have been selected as Alabama’s 2015-2016 cohort of NASA Space Grant Scholars and Fellows. This “NASA ASGC Scholars and Fellows Journal” is a personal introduction for you to this group of bright young people who will soon become part of the next generation of America’s aerospace workforce. From experience, we know that many of them will assume leadership roles in many different fields of aerospace science and engineering, in research, production, teaching and management. The National Space Grant Program is described briefly in the next section in order to put the program into context. The Alabama Space Grant Scholarship and Fellowship Program is one of the largest in the country, because our universities have agreed to double the number of Fellowships awarded each year, beyond those funded by NASA. We do that because both government and industrial aerospace has a very significant position in the high-tech economy of our state.

Please take a moment to read the personal statements and credentials of this up-and-coming group of exceptional scientists and engineers studying at universities across Alabama.

Yours sincerely,

Dr. John C. Gregory
Director
Alabama Space Grant Consortium
**What is SPACE GRANT?**

The U.S. Congress created the National Space Grant College and Fellowship Program in the NASA Authorization Act of 1988. In 1989 NASA acted upon this law and initiated the program, usually known as “Space Grant”. The antecedents of Space Grant are Land Grant and Sea Grant. Space Grant is a national network of colleges and universities working to expand opportunities for Americans to understand and participate in our national aeronautics and space enterprise. The Space Grant national network currently includes over 1,000 affiliates including universities, colleges, industries, museums, science centers, and state and local agencies across 52 consortia in all 50 states, the District of Columbia and the Commonwealth of Puerto Rico. Among their various programs, the 52 consortia fund fellowships and scholarships for students pursuing careers in science, mathematics, engineering and technology, or STEM, as well as curriculum enhancement and faculty development. Member colleges and universities also administer pre-college and public service education projects in their states.

**What does the Alabama Space Grant Consortium do? (www.asgc.uah.edu)**

Since its inception in 1989, the NASA Alabama Space Grant Consortium (ASGC) has constructed a broad-based member and affiliate network of universities, industry, research centers, formal, and informal educational institutions across the state through which we develop, and deliver programs and opportunities to recruit and train U.S. citizens. Our members include all 7 Research Universities in the state: Alabama A&M University (AAMU), Auburn University (AU), The University of Alabama (UA), The University of Alabama at Birmingham (UAB), The University of Alabama in Huntsville (UAH), University of South Alabama (USA) and Tuskegee University (TU). Other affiliates include NASA Marshall Space Flight Center (MSFC) and several other educational institutions, museums and private industry. UAH, located in the city of Huntsville, leads the Consortium. We encourage participation from individuals in those groups traditionally underrepresented in aerospace and STEM-related professions. All ASGC programs are designed to fit within both NASA’s education goals and our own consortium mission. Each member university defines its own role within the consortium, and sponsors high-quality activities chosen from our portfolio of programs suited to its own capabilities. All campuses do NOT all do the same things. Campus Directors work closely as a team to integrate programs and help each other fully share in program accomplishments and benefit from resources, contacts, and lessons learned.

**What is the ASGC Scholarship and Fellowship Program?**

The Alabama Space Grant Consortium (ASGC), a member of the NASA National Space Grant College and Fellowship Program, supports undergraduate scholarships and graduate fellowships for students studying in an STEM-related disciplines at participating universities. The awards are made to U.S. citizens with proven academic excellence and accomplishments. In Alabama, we award over $326,000 worth of Space Grant Scholarships and Fellowships each year. This adds up, over the 26 years of the Alabama programs, to a total of 901 undergraduate scholarships and 288 graduate fellowships, for a total of over $7.4 million in financial support. The students are competitively selected from hundreds of applicants each year. This current year $326,500 ($111,000 in matching, non-federal funds and $215,500 in NASA funds) was directed to scholarship and fellowships.
Scholarship & Fellowship Program

The ASGC has developed a strategic plan that both reflects NASA strategic interests and supports Alabama’s education, research and economic agenda.

Our Mission is:

• to inspire, enable and educate a diverse group of Alabama students to take up careers in space science, aerospace technology and allied fields;
• to play our part in assuring U.S. leadership in space exploration and aerospace technology in the future;
• to inspire the next generation of space explorers (pre-college programs);
• to bring increased realization of the value of space science and technology to the people of Alabama; and
• to insure that our message and our programs reach all constituencies in the population of Alabama, especially those traditionally under-represented in the science and engineering professions.

Our Vision is:

• an increased level of appreciation, participation and leadership by the people of Alabama in our national space exploration and aerospace engineering enterprises.

Local and National Context:

ASGC is headquartered at UAH in Huntsville, AL has a reputation as a high-technology center in our region, with strong ties to NASA and America’s Space program. Huntsville is the home to NASA Marshall Space Flight Center and a major U.S. Army missile research and development center based at Redstone Arsenal. UAH is physically located in Cummings Research Park, the second largest industrial park in the U.S., containing over 285 companies, many of which are aerospace-related. A major function of all the universities and colleges in our consortium is to supply well-trained engineers and scientists to the aerospace and defense entities in Huntsville.

With their unique capabilities and interests in aeronautics, space and related fields, our members work in partnership with a diverse group of members and affiliate members, NASA, industry, state and local governments to develop programs of Space Grant activities that promote institutional cooperation and to expand capabilities rather than to directly support technical research.

The aerospace enterprise has a special importance to the people of Alabama. While other states have NASA field centers, many of those (CA, FL, OH, TX) are much larger in population and industrial production terms or, as in the case of MD and VA, the impact of NASA is overwhelmed by much larger government presences. Since the early days of Redstone and Apollo rockets, the people of Alabama have looked to NASA MSFC as a focus for development of high technology industry in the State and for involvement of its universities and colleges in space science and engineering.
Alabama Consortium Membership

Management and Administration

The Alabama Space Grant Consortium (ASGC) is composed of seven Ph.D. granting universities in the state of Alabama: Alabama A&M University, Auburn University, The University of Alabama, The University of Alabama at Birmingham, The University of Alabama in Huntsville, University of South Alabama, and Tuskegee University.

Our college affiliates include the Bevill State Community College and Shelton State Community College. ASGC is associated with several non-profit organizations such as Alabama Mathematics, Science and Technology Education Coalition (AMSTEC), Sci-Quest, the U.S. Space and Rocket Center, and the Von Braun Center for Science and Innovation, Inc. We also partner with The Boeing Company, Lockheed Martin, Dynetics, Inc., and NASA Marshall Space Flight Center.

The Alabama Space Grant Program is administered by The University of Alabama in Huntsville, a Space Grant College.

The Consortium Director, Assistant Director, Resource Manager for NASA EPSCoR, and a Campus Director on each of the seven campuses constitute the Consortium Management Team. The names, addresses, and phone numbers are as follows:

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Alabama Consortium Membership

Campus Directors

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(f) 251-460-6343
jsteadman@southalabama.edu
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U.S. Congressional Representatives

**Alabama A&M University**

**Scholar/Fellow**

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<td>Justin Cole</td>
<td>Terri A. Sewell</td>
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<td>Jesse Matthews, Jr.</td>
<td>Gary Palmer</td>
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<td>Kasey McCoy</td>
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<td>Troy X. Smith</td>
<td>Beto O’Rourke</td>
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**Graduate Fellow**

| Jonathan S. Lassiter   | Phil Roe                    | TN 1    |

**Auburn University**

**Scholar/Fellow**

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<td>Dorian G. C. Hill</td>
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<td>Julie Sarasua</td>
<td>Jeff Duncan</td>
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**Graduate Fellow**

| Austin Russell Gurley  | Gary Palmer                 | AL 6    |

**The University of Alabama**

**Scholar/Fellow**

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<th>Undergraduate Scholars</th>
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<td>Andrew John Zeller</td>
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**Graduate Fellow**

<p>| Andrew Wrist           | Robert Pittenger            | NC 9    |</p>
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<td>Deanna Smith</td>
<td>Doug Lamborn</td>
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<td>Demeco S. Pope</td>
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<td>George Moore, II.</td>
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<td>Ivey Marie Van Voast</td>
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<tr>
<td>Vincent Jordan Voss</td>
<td>Mo Brooks</td>
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Congressional Representatives

**Alabama Congressional Representative Bradley Byrne ~ District 1**

*Scholar/Fellow*

- Undergraduate Scholar
  - Dylan Michael Burton
  - Colton O’Neal DeBlieux
  - Braxton Leerick Kennedy
  - Kasey McCoy
  - Katheryn McCoy
  - Russell David McKeithen
  - Lauren Gabrielle Moorer
  - Keith Anthony Nelson
  - Phuoc Hung Nguyen
  - Joseph Drake Olmstead
  - William Micah Pimperl
  - Alicia Claire Ratcliffe
  - Cynthia Mae Salyers
  - Lisa Melanie Schibelius
  - Colin Stelly
  - Thearthur Edward Thames
  - Ivey Marie Van Voast

*Graduate Fellow*

- Graduate Fellow
  - Sam A. Mayes

**University**

- Faulkner State Community College
- Faulkner State Community College
- Bishop State Community College
- Alabama A&M University
- The University of Alabama
- Faulkner State Community College
- Faulkner State Community College
- Bishop State Community College
- Bishop State Community College
- The University of Alabama
- Faulkner State Community College
- University of South Alabama
- Auburn University
- Bishop State Community College
- Bishop State Community College

**Alabama Congressional Representative Martha Roby ~ District 2**

*Scholar/Fellow*

- Undergraduate Scholar
  - Frederick William Riedel

**University**

- Lurleen B. Wallace Community College

**Alabama Congressional Representative Robert Aderholt ~ District 4**

*Scholar/Fellow*

- Undergraduate Scholar
  - Dewayneanna Martin
  - Brenton Shane Rickman

**University**

- Tuskegee University
- Beville State Community College

**Alabama Congressional Representative Mo Brooks ~ District 5**

*Scholar/Fellow*

- Undergraduate Scholar
  - Jacob D. Locke
  - Sean David Mayers

**University**

- Auburn University
- John C. Calhoun Community College
Alabama Congressional Representative Mo Brooks ~ District 5 (continued)
Scholar/Fellow

Undergraduate Scholar
Sean Robert Mitchell
Bethanie N. Thomas
Vincent Jordan Voss

Teacher Education Scholar
Katherine Pohly
Demeco S. Pope

Graduate Fellow
Nicholas Pensa

University
John C. Calhoun Community College
The University of Alabama at Birmingham
John C. Calhoun Community College

Alabama Congressional Representative Gary Palmer ~ District 6
Scholar/Fellow

Undergraduate Scholar
Brianna Bolling
Jesse Matthews, Jr.
Trey McFerrin

Graduate Fellow
Austin Russell Gurley

University
The University of Alabama
Alabama A&M University
The University of Alabama in Huntsville
Auburn University

Alabama Congressional Representative Terri A. Sewell ~ District 7
Scholar/Fellow

Undergraduate Scholar
Justin Cole
Rodney Hardy, Jr.
John Mullins
Brittney Nicole Terry

University
Alabama A&M University
Tuskegee University
University of South Alabama
Lawson State Community College

Special Recognition
Photography by Mrs. Rachael Damiani
Career Goals:
I am an Electrical Engineering major at Alabama A&M University. My whole life I have been interested in technology and from a young age I knew I wanted to have a career that has to do with such. I also have a love for art and music. Within the next 5 years I will be graduating and I have considered many avenues upon graduation. The first, after I get my bachelor’s degree is to get my Master’s in Electrical Engineering. I feel this will set me apart and give me an edge over the competition as well as letting me continue my scholastic studies because you should never stop learning. Upon getting my masters I might pursue a higher degree or possibly one in a different area of study because I have many artistic passions. Secondly, I always wanted to go into the military because it seems so adventurous and fun. If I joined the military, I would get exposed to differently walks of life, meet new people and friends, heighten my expertise, and get a chance to make a difference. When I was in high school, I was in ROTC which I thoroughly enjoyed and ever since then I have been longing to go back to that. If I were to join the military I haven’t yet decided what I wanted to do but my aspiration is to be a pilot. If I don’t become a pilot, I’d do something that had to do with my Electrical Engineering background. 20 years from now I want to own my own business or corporation. I have always had great leadership skills and know how to get things done so if I was a business leader my business would be prosperous and successful. Sure, I might take some downturns but that's always a part of life. I would just get up and keep moving forward. I don't know the structure or purpose behind this business yet, but I do know I want to be manufacturing devices. I would like to make a significant difference in the world and leave my mark, as well as create an empire and make something out the name I have been given.

Hometown: Huntsville, Alabama
Congressional District: AL 7
Advisor: Professor Aaron L. Adams

High School: New Century Technology High School
Congressional Representative: Terri A. Sewell
Alabama A&M University

**Undergraduate Scholar**
Jesse Matthews, Jr.
B.S. Civil Engineering
December 2017

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**Career Goals:**
The course of study I would like to pursue is Civil Engineering. Civil Engineers design, construct, and focus on the maintenance of public works for human satisfaction. Civil Engineering is the oldest and most common branch of engineering. This course of study deals with solving real problems while applying math and science. As a little boy, I always had a desire to build, construct, and draw things. I grew up always wondering how things were built and how things worked. As a child, I loved to watch and indulge in home improvement shows, rather than cartoons, which is sort of unusual for a teenager. All of these aspects gave me a greater desire in pursuing this course of study. I would like to pursue several internships in order to gain experience and knowledge within this field of study. This course of study will help me achieve my career goal. After receiving my degree in Civil Engineering, I plan to return to my community to assist in the revitalization of dilapidated areas. I also plan to buy old homes and buildings to rebuild them like new again. Hopefully, this will bring life back into the community. Having my degree in Civil Engineering will definitely open many doors in career choices. I believe this career choice requires a vivid imagination and a creative mindset both of which I possess. I believe my strong drive, determination, and ambition will also assist me in obtaining my career goal. My overall career goal is to own a successful architectural firm and specialize in building and constructing energy efficient homes and buildings.

**Hometown:** Bessemer, Alabama  
**Congressional District:** AL 6  
**Advisor:** Professor Aaron L. Adams  

**High School:** Bessemer City High School  
**Congressional Representative:** Gary Palmer
Career Goals:
One of my short term goals before graduation is to join a club or organization and take on a leadership role. I believe everyone should have leadership characteristics to be successful in the real world. With those leadership skills, it can set the path to someday becoming the manager of a major engineering company. In addition, I would like to assist in conducting a research project. Whether it is to actively research in a major field other than my own, researching can help me further clarify my goals and assist me in gaining a better understanding of what I would like to do in the future. Lastly, I would like to maintain my grade point average on a scale between 3.8 and 4.0. I believe if I have well-developed knowledge in civil engineering, then it will take me a long way in the future. One of my main goals in my lifetime is to become a known expert in the field of civil engineering. I want to be the person that everyone refers others to as a good candidate for a job. During my lifetime I want to be known as one of the top prospects in a certain area. I never want to settle for less as a person; I want to be remembered as the greatest of them all. Also, I would like to delegate work and tasks more effectively to increase my productivity on different engineering projects. On the other hand, I want to become skilled to the point where I can work things out quickly and proficiently as a civil engineer. As an undergraduate student, I am learning more about how efficiently I work on different projects. In addition, after I have gained enough experience in the civil engineering field, I would like to go back to school and obtain my Master’s degree in Architecture. Similar to civil engineering, architecture relates to designing of different types of buildings. Although civil engineering is my undergraduate major, I have a passion for architecture and drawing blueprints for different buildings.
Career Goals:
My short term career goal will be to get an internship to get a better grasp on my field and to gain more knowledge on what I'm most passionate on doing in mechanical engineering. My long term career goal will be to find what I am passionate in and do that to better the world and not just around me but change the world for every one.

Hometown: El Paso, Texas
Congressional District: TX 16
Advisor: Professor Aaron L. Adams

High School: El Dorado High School
Congressional Representative: Beto O'Rourke
Career Goals:

To mention my career goals concisely is quite a challenge, as there are many. During my education much time has been devoted to determining where interests and aptitudes lie. More interests and aptitudes were found than anticipated. Academics, personal development, outreaches, professional development, and even errors have been demonstrated to expand my perspective in the short and long terms. To expand upon the above in the short term of each of the above fields the methods must also be explored. I strive for excellence in coursework to be achieved through study, to yield understanding, and serve to bolster my knowledge in the long-term. I am driven toward expanding research through exhaustive studies, thorough literature reviews, internship, and through teaching students at the Materials Research Lab appropriate research practices. Through improving my pedagogical abilities, and having excellent outreaches I can achieve an even greater understanding in the natural sciences, as well as communication breakdowns and misconceptions in the future participants in STEM fields. In the process of achieving these short-term goals, my Ph.D. will also be sought. The above short term goals have long-term effects. They will contribute greatly whether in industry or in academia. I would be content and well suited to either of those environments.

Hometown: Springfield, Tennessee
Congressional District: TN 1
Advisor: Professor Aaron L. Adams & Professor Stephen Babalola

High School: Springfield High School
Congressional Representative: Phil Roe
Career Goals:
My short term goal is to acquire an internship at Alabama Power. After which, I hope to find a company where I can gain some engineering experience for about 2 or 3 years, before moving on to a more high-profile company to start my career.
Auburn University

Undergraduate Scholar
Jacob Locke
B.S. Electrical Engineering
December 2017

Career Goals:
For the past two years, I have been a part of Auburn’s Student Space Program working to develop an advanced CubeSat platform. I started working with the management team initially helping to keep track of our members and make sure the team was on schedule. After the first semester, I worked with our systems engineering team, where I started to learn how each subsystem functions and how subsystems of satellites work with each other. This was the time when I had to completely understand how the satellite was going to operate as we were making design decisions and conducting risk analysis. During my third semester with the team, my dedication to the team had earned me the top position of project manager. As the project manager, I was responsible for making sure every subsystem team knew what needed to be accomplished and that progress was made, among other things. Currently, I still serve as a manager, but I was not able to devote enough time to managing the program since I am working full time as an intern for a local engineering company. In the short term, I see myself continuing as the project manager for Auburn’s CubeSat team, driving the team towards completing our design and being ready for when a mission materializes. Serving as project manager has helped me develop my communication and management skills that I believe will help me after graduation. Looking long term, I am not sure where I will end up when I finish college in two and a half years. Working with satellites is fascinating to me, but I can see electrical engineering taking me down many different career routes.

Hometown: Madison, Alabama
Congressional District: AL 5
Advisor: Professor David G. Beale

High School: Bob Jones High School
Congressional Representative: Mo Brooks
Career Goals:
Over the next five years, I aim to explore the applications of industrial and systems engineering in order to discover what truly interests and excites me. Coming into college, I knew that systems engineering was interesting, but did not know much about it specifically. Over the next few years, undergraduate research and summer internships would be key in learning about the work applications in the field of industrial and systems engineering. Additionally, I plan to remain a member of the Auburn Student Space Program, which is currently working on designing, building, and testing a cube satellite for potential launch. Over the next four years, I hope to be a major asset to the team and to see "AubieSat," the Auburn CubeSat, to reach space. In the long run, I aim to become a professor at a major institution. This is for two reasons. The first is that I want to be an innovator, and I have always been interested in researching new things. In twenty years, I hope to have made headway in improving systems design and use. The second is that I have found a great purpose in my life thus far in tutoring and teaching others. I have been truly fortunate to have had professors who inspire me to want to learn and work in the field of engineering, and I hope to one day be in a position to mentor and inspire future minds. Professors have a unique position that combines research with teaching and mentoring. Additionally, being a teacher requires one to stay up-to-date in the changes of the field, which supports new innovation.
Career Goals:
There are several things I plan on accomplishing before graduating from Auburn. I would like to complete at least one undergraduate research project in either the physics or aerospace fields. I would specifically like to study high-energy radiation, or anything related to orbital mechanics, although I am open to any research opportunity. I also plan on completing a Minor in both Automotive Engineering and German language. Working as an intern is another goal of mine to complete before graduation. I would like to work in the engineering industry at either Lockheed Martin or NASA this summer. Finally, I will complete my research for engineering solutions in Bolivia. I am currently involved in Auburn’s engineering outreach program that is partnered with the community of Quesimpuco, Bolivia. I am leading a team to design and implement soil erosion control solutions in the region. Before I graduate I will make sure to see this project to its completion. After graduating from Auburn, I will attend graduate school. My plan is to obtain a Master’s degree in Aerospace Engineering and work at NASA with manned spacecraft. I also want to work in research, ideally with high-energy astrophysics. Another career goal is working in the robotics field. One of my interests now is the design and construction of robots. I would love to continue applying the things I have learned in my free time to the real world. I have other plans to fulfill after achieving these goals. I would like to work with Engineers Without Borders as a senior engineering consultant. I am involved with the organization now and it is a good way to use what I have learned to help others. In my opinion, this is the goal of engineering; to improve the lives of people around the world.
Career Goals:

The three areas most influential to my engineering vocation have been: my work with the Formula SAE automotive racing team, my internship with a Department of Defense contractor, and my undergraduate research in lightweight braided carbon composites. The varied nature of these experiences has shown me the wide variety of engineering I can contribute to as I mature in my education and ability. Exposure to the leading edge of ground vehicle, military, and materials engineering has shown me what it takes to be a successful engineer amongst continuous innovation. To be a successful contributor to engineering science, I must increase my knowledge and abilities by continuing my education. Upon graduation, I will enter industry with a broad understanding of engineering science, and will have proven I can make meaningful contributions to it through my dissertation. I plan then to continue in engineering research, though probably not academic; I feel that opportunities presented by both commercial and government agencies (such as the Department of Defense, Department of Energy, and NASA) are able to quickly identify needed solutions and develop technology with practical results. I have a keen interest in commercial endeavors; I plan to greatly expand the work I have started through my patent application related to solar energy use, and to focus my long term efforts on the marketing and viability of solar energy production. Through my work with the Formula SAE team, research in novel composite structures, and experience in starting a company, I have a grasp of both designing parts into real environments and working with individuals and teams to advance the goals of the design. Being immersed in application and sharing successes has given me vision for applying my skills and experience to promote research and share my work with the world. With strong goals of accomplishment, and continuing to strive for excellence in engineering, I will be successful and will share those successes with people around me and with the world.

Hometown: Leeds, Alabama
Congressional District: AL 6
Advisor: Professor David G. Beale

High School: Westminster Classical High School
Congressional Representative: Gary Palmer
Career Goals:

My short and long term career goals have always involved space, and specifically working for NASA. I recently became a cooperative education student at Johnson Space Center in Houston, Texas. Most of my goals revolve around career opportunities with NASA, specifically completing my five rotations with the NASA Pathways program. One of my short-term goals is to gain a broad and in-depth knowledge of the space program including deep space travel, robotics, innovations in propulsion and systems integrations. I would like to begin a career path which would ultimately lead to a position as a flight director for the International Space Station or one of the newer vehicles like Orion which will be coming online over the next few years. My other short-term goals are to complete flight training to obtain my pilots license, to become fluent in Spanish, and begin working toward a Master’s program. Becoming an astronaut has been a life-long dream of mine; therefore, my long-term goal is two-fold. First, have a long-term career at NASA participating in and contributing to the successful space program for the United States; and second, be accepted into the astronaut program and complete a mission or missions in space. My education and experience as a co-op thus far has further resolved my desire to work in and make a meaningful contribution to the space program. My first rotation as a co-op allowed me the opportunity to experience first-hand the amazing work that is done at Mission Control, and I want to continue to participate in that. Becoming a flight director will allow me to accomplish both goals. I will actively participate in many areas of the space program and have an excellent opportunity to become a successful candidate for the astronaut program.
Career Goals:
In 5 years I plan to have graduated from the University of Alabama with honors, accolades, internships, and co-ops. I plan to be working for a Fortune 500 company. In 20 years I hope to have a foundation that inspires female engineers and encourages diversity in engineering fields. I plan to be an established leader in the company I’m working with, one day even CEO.
The University of Alabama

Undergraduate Scholar
Kathryn McCoy
B.S. Civil & Environmental Engineering
May 2016

Career Goals:
In five years I hope to be working at a consulting firm doing air permitting work in Environmental Engineering. However, since Environmental Engineering is a hard department to get into at most companies because they only need a couple of them, I will be keeping my options open by considering careers in Civil Design at power plants. Once I have been working for 20 years, I hope to have secured an Environmental Engineering position where I am happy to go to work each morning. At this point it is hard to determine exactly what type of career would make me happy 20 years from now, but my main goal for the next 20 years is to figure that out.

Hometown: Spanish Fort, Alabama
Congressional District: AL 1
Advisor: Professor John Baker

High School: Spanish Fort High School
Congressional Representative: Bradley Byrne
Career Goals:

In only the last year and a half, I have had the opportunity to work on a hovercraft, suborbital nanosatellites, VTVL rockets, small aircraft, and balloonsats. I also regularly attend campus AIAA meetings and listen to the industry speakers. I don’t think I’ve heard a single person describe a career of one or even two or three jobs. All of them have very diverse backgrounds and have all been a part of a very wide range of projects. All of these experiences lead me to believe that, regardless of what I predict I will do for the next twenty years, my actual career path will be fulfilling and ever-changing to become more fascinating with the changing future of the field. My short and long term career plans begin with aviation. Currently, I am working on my commercial pilot certification, and I plan to spend weekends during the school year and one summer working as a pilot. After graduation, I will apply to be a Naval Aviator and hopefully spend a few years gaining experience flying jets. From there I will apply to the NASA Astronaut program and see if I can experience space first hand. If at any point this plans fails, I will apply to an engineering position in the space system department of NASA or a private company like Boeing or Virgin Galactic. The underlying goal of this plan is to land opportunities to work on the kinds of projects that inspired my infatuation with space and space exploration and driven me since the first grade. I have always been enthralled by the daring feats of manned space exploration and by the engineering marvels that have made them possible. I would love to be able to design and build space propulsion systems or the next generation of reusable space vehicles. I have a particular interest in space planes, my two great loves in one vehicle. Regardless of the specific area, I know I will find my way into an exciting project and work hard so I can contribute to the kinds of amazing machines and missions that filled my childhood imagination.

Hometown: Gulf Shores, Alabama
Congressional District: AL 1
Advisor: Professor John Baker
High School: Bayside Academy High School
Congressional Representative: Bradley Byrne
Career Goals:

My most immediate career focus is on obtaining an internship for the summer of 2015. The ideal internship for me would be at NASA, Lockheed Martin, or a similar company that would give me hands-on experience in the aerospace field, and my goal specialization within mechanical engineering. I have been working earnestly toward this goal since August 2014 by pursuing leads through contacts at several companies and working to refine numerous applications. With an internship, I would learn a set of skills specific to the workforce dimension of engineering that I cannot obtain in a classroom. I would work hard, learn as much as I can, and endeavor to leave a positive mark on the company. In my last year of school, I will look for opportunities similar to those I have already taken to learn and gain experience in aerospace engineering. To date: I have competed in design projects, conducted research on a method of calculating distances to nearby galaxies and on a computational model of laser ablation, presented my research at numerous conferences, done volunteer work, attended various events related to aerospace engineering, participated in international honors societies, and worked to achieve both knowledge and high grades in my classes. I plan to continue my research and look for new opportunities to expand my knowledge and increase the skills I can bring to a job. My ideal career in high school was an engineering position at NASA, and that aspiration has only strengthened in college. Since I entered college, I have learned that many companies work with NASA towards several of the same goals. My 20-year goal is still to work for NASA, but I will be equally excited and satisfied to work for a related company. At the end of 5 years, I hope to have established myself in my job and demonstrated that I am capable of not only completing assignments, but also going above and beyond requirements with enthusiasm and curiosity. In my long term career, my goal is to learn as much as I can about inventive applications, use this knowledge to push the limits of what is possible, and elevate the quality of human life. More specifically, my dream is to continuously expand both my knowledge and the world's knowledge in the area of aeronautics.

**Hometown:** Paducah, Kentucky  
**Congressional District:** KY 1  
**Advisor:** Professor John Baker  

**High School:** Silver Arrows Academy High School  
**Congressional Representative:** Ed Whitfield
**Career Goals:**

Science and Engineering have always been passions of mine; to create, build, and discover are what I seek in academic and extracurricular pursuits. For as long as I can remember I have enjoyed learning how different resources, elements, and even anatomical structures work the way they do. I truly want to understand the depth of the answer to the question, ”Why?" My first in-depth exposure to the various fields of Engineering was in 7th grade when I was drawn to the discipline of Materials Science. Majoring in Materials and Metallurgical Engineering affords me the opportunity to understand and evaluate metals, ceramics, and polymers that we use on a daily basis at an atomic level. The combination of Engineering principles with Biomedical applications is a focus in my current area of study. Throughout college I have attended various seminars and lectures that explore Nano-materials, composite materials, and medicine. The unique applications of Materials Science to the human body represent a host of possibilities for me to successfully combine the two fields of study into a career that makes a positive impact on global health. This aspiration has led to my interests in slow-release capsulated drugs, artificial organs, nanomaterials, and tissue regeneration. My immediate plan upon completion of my current program of studies is to complete a Master's Degree in Materials and Metallurgical Engineering. Afterwards, I plan to pursue a terminal degree which combines either Law or Medicine with Engineering, allowing me to directly impact the development of groundbreaking technologies.
Career Goals:
The overarching focus I would like to see my career take is the propulsion side of space exploration. Propulsion in space exploration, and more specifically, advanced propulsion such as single-stage-to-orbit space planes, and advanced means of interplanetary travel interest me the most because it is a fundamental problem of space travel. How to get the astronauts to their destination within their own lifetime will always be a concern when everything is on the magnitude of light years away. In the short term, I plan to graduate with my Bachelor’s degree in Aerospace Engineering, as well as Physics from UA, and hope to continue working in my current job with Boeing on the SLS program. I would like to work on the program up until the first or second launch of SLS, and then move to a new space exploration program within Boeing, gathering a great set of engineering skills along the way. I would also like to pursue my Master’s degree in Aerospace Engineering part-time while I work for Boeing. In the long term, my goal is to end up at NASA to spend the remainder of my career, probably as a manager in a space exploration program of the time (Mars). I hope to have built a successful career in propulsion, where my expertise can really be utilized, while also having a grasp of every aspect needed to make a successful space exploration program. Most importantly, I hope to look back on my career and know I was able to contribute to our Nation’s proud history of space exploration.
Career Goals:

My short term career goals include the following: have at least two journal publications as lead author before I graduate, and graduate with a Master's degree in Aerospace Engineering in 2016. My long term career goals are: graduate with a Ph.D. in Aerospace Engineering, obtain an entry level position as an Aerospace/Aeronautical Engineer at a large company, and obtain a position as an engineering project manager for a research/development group.
THE UNIVERSITY OF ALABAMA AT BIRMINGHAM
Career Goals:

Long term, I would love to own my own software development company specializing in developing applications for use in technical fields. One of the things I love about software development is the ability to interact with so many fascinating fields of study including the aerospace industry. I enjoyed it so much that I first went to school to learn about it. After graduating, I plan to get a job with an established company for 2 - 5 years, before looking to explore other opportunities.

Hometown: Gainesville, Florida
Congressional District: FL 3
Advisor: Professor Yogesh K. Vohra

High School: Buchholz High School
Congressional Representative: Ted Yoho
The University of Alabama at Birmingham

Undergraduate Scholar
Bethanie N. Thomas
B.S. Civil Engineering
December 2015

Career Goals:
I am from Huntsville, Alabama so I can see myself starting my career there, and hopefully with NASA doing civil engineering work. Since I do not have a set career yet, my long term and short term objectives with my career are to provide the best quality of work while protecting the safety, health, and welfare of the public wherever I go with my engineering degree. I see myself bringing hard work, efficiency, quality, loyalty, and trust to the table while working with other engineers. My goal is to secure a job with a compatible company where I can begin my lifetime career. I have a lot of passion and respect for engineering and can’t wait to start my career.

Hometown: Madison, Alabama
Congressional District: AL 5
Advisor: Professor Yogesh K. Vohra

High School: Bob Jones High School
Congressional Representative: Mo Brooks
Career Goals:

My short term goals are centered mostly around my professional development during my tenure at the University of Alabama at Birmingham. As a graduate researcher, I hope to master skills that will allow me to contribute independent research to the scientific community. Upon joining the Bellis lab group in the Fall of 2014, I have already significantly improved my understanding of laboratory techniques. In this laboratory setting, I am fortunate to be able to bring in the benefits of my engineering background to a project where interdisciplinary expertise will improve my overall training as a scientist. I hope to learn as much as I can to bolster my project from these generous professors. In conjunction with working in the lab setting, I am also a member of the Biomedical Engineering Graduate Society, which focuses on bringing fellowship and professionalism to its respective graduate members. I look forward to upcoming elections where I can increase my role in this organization’s impact on campus through philanthropic events and academic seminars such as the UAB BME research symposium. Upon receiving my doctoral degree, I hope to pursue a research career within private industry. I know that the training under my mentor will give me every tool necessary to be successful in my professional career. In private industry, I would seek projects where my scientific efforts would directly apply to commercialize products for bone grafting materials and techniques. As student, I always felt a greater sense of pride and accomplishment whenever I knew that the specific project I was working on had the ability to directly benefit the general public. As an industry scientist, I would work diligently to build a lab that conducts reputable research that would focus on the immediate public issues regarding bone aging, disease and fracture.

Hometown: Decatur, Alabama
Congressional District: AL 5
Advisor: Professor Yogesh K. Vohra & Professor Susan Bellis

Graduate Fellow
Nicholas Pensa
Ph.D. Biomedical Engineering
April 2018

Hometown: Decatur, Alabama
High School: Austin High School
Congressional Representative: Mo Brooks
Advisor: Professor Yogesh K. Vohra & Professor Susan Bellis
Career Goals:

My short term career goals involve the pursuit of a Master's degree in Engineering after completion of my undergraduate degree. My interests are pointing in the direction of control systems and compressible aerodynamics. Over the next year, I will continue to evaluate my specific goals for graduate school as I take undergraduate classes on these subjects, learn new things during an internship, and evaluate the variety of graduate school options. After completion of school, I intend to seek a job involving the development of spacecraft hardware. My longer term career goal is to develop technologies that forge new frontiers of what is currently possible in spacecraft. One of my major inspirations is the SR-71 Blackbird program of Lockheed's Skunk Works. They created a vehicle capable of achieving something never before seen, sustained flight at three times the speed of sound. Likewise, my goal as an engineer is to contribute to mankind's future in air and space by creating technologies that push current boundaries and make new missions possible. The form this will take is yet to be seen. There are so many possibilities, and the aerospace field has so much potential. I look forward to the journey.

Hometown: Birmingham, Alabama
Congressional District: AL 6
Advisor: Professor Gerald R. Karr & Professor Francis C. Wessling

High School: Hope Christian High School
Congressional Representative: Gary Palmer
Career Goals:

When I was younger, my favorite part about growing up in the country region of Colorado was being able to look up at all the stars. I tried counting them numerous times because they fascinated me. There were so many of them, and they all looked so tiny and so far away. I wanted to know everything and anything about them. After going through middle school and learning about space and all that is in it, I was hooked for life. I knew one day that I wanted to study space. In high school, my school did not have an astronomy course, so I took physics instead. It was mind-blowing to learn about the different laws of motion and how everything in the universe works together perfectly. From high school into college, my dream was to be able to get a degree in Astrophysics from the University of Alabama in Huntsville. My short term goal is to finish my Bachelor's degree in Astrophysics, then continue to get a Master's degree at UAH. To achieve this goal, I am in the JUMP program to help me combine some of the work and finish my Master's degree more quickly. Another short term goal is to lead the science team for the next UAH CubeSat, ChargerSat Azure. The mission for this satellite is to study the water quality of inland bodies of water by looking at chlorophyll and sediment levels. I am currently the Science Team Lead which has given me a unique opportunity to experience building a satellite with engineers along with developing a scientific instrument for it. This will not only help me further interdisciplinary communication in the field, but also give me an opportunity to practice research. My long term goal is to earn a Ph.D. in Astrophysics and become a professor. Another passion of mine is to help people learn new information. When I can teach them something new, then see the light in their eyes as they understand, it makes my day. This is why I want to become a physics instructor. While going through my degree program, I have loved to watch different professors and imagine myself at the front of the classroom. I ask myself what would I do differently or how would I handle a situation. I have also noticed that the teachers that have passion for their subject are the best educators. This passion is manifested in research. Because of this, I not only want to become an excellent professor but also an excellent researcher.
Career Goals:

During my high school career, I was lucky to have wonderful teachers, especially those who taught my AP classes. However, after seeing other classrooms/teachers, talking with friends at different schools, and reading current news articles, it became quite apparent to me that our public education system needs some help. When coming to college at UA, I knew I wanted to major in Chemistry. I knew I wanted to teach. So I decided to transfer to UAH, where I will be able to pursue a double major, that is actually a double major. With a degree in Chemistry and Secondary Science Education from UAH, I will become highly qualified to teach. And I will be able to accomplish all of my goals with my remaining two years of school. While it’s easy to plan my short-term career goals, it’s somewhat more difficult for me to think about long-term career goals. I would love to work in a research lab, focusing on genetics or disease research. I would love to teach at the college level and inspire even more students. I would love to work for a drug company and maybe explore the marketing side of things. I believe I will have several options if I decide not to teach forever, and I will happily cross that bridge when I come to it. I am excited for this next journey of my life and how it will lead me on a path to my career goals.
Career Goals:

When I was a younger student my interests were mainly artistic, and I did not give much thought towards science. After I took my first biology and chemistry classes at UAH however, I began to appreciate the sciences more. Once I became a biology PASS leader, and began helping other students understand various concepts, I became very interested in teaching full time. My short term career goal is to teach biology in a middle or high school. My long term goal is to expand the range of my teaching qualification to include general science, chemistry, physics, and mathematics. My teaching goal is to inspire all of my students to look at the world through a scientific lens, appreciate the complexities of nature, and develop a life-long desire for learning.
Career Goals:

Twelve months from now, I am planning to be near the completion of this research project, and preparing to launch a career in mechanical engineering. Short-term goals to those ends include successful implementation of the feedback control scheme in the biped walking robot in the lab, publishing papers and a journal article on various aspects of the research topic, finishing and defending my dissertation, and, ultimately, attaining my Ph.D. degree. For the past few years, one of my recurring short-term goals has been to develop a preference for either academia or industry, when it comes to long-term career plans. My past neutrality and indecision on that issue has now become a clear preference for applied research, often found in industry rather than academia. This development is a direct consequence of the past six months spent on the walking control problem, as well as an internship at the Marshall Space Flight Center (MSFC) last summer. The projects I have had the privilege of being a part of, at the MSFC Control Systems Branch and UAH Advanced Robotics Lab, have been crucial in the process of settling on a career direction. Now, my short-term goal in career development is to develop a better understanding of what opportunities exist in applied robotics that would be interesting and rewarding for me. In the long term, my desire is to have a career in which I can apply engineering expertise to important real-world problems. My research project exemplifies the kind of work I would like to do in the future. In addition to being a stimulating topic, the potential applications of this work are extensive, including deployment of humanoid robots to burning buildings or the planet Mars, as well as improvement of lower extremity technologies for people who have difficulty with walking. This fellowship has already challenged me to think about goals and has helped me to meet some of them; I look forward to continuing that process.

**Hometown:** Nashville, Tennessee  
**High School:** Hume – Fogg High School  
**Congressional District:** TN 5  
**Congressional Representative:** Jim Cooper  
**Advisor:** Professor Gerald R. Karr, Professor Francis C. Wessling, & Professor Farbod Fahimi
Career Goals:

My short term goals are concerned with establishing the academic foundations and education necessary for becoming a computer engineer. I am pursuing a dual degree in computer engineering and mathematics at the University of South Alabama. Within computer engineering, my specific interest is in computer hardware design and robotics. I have completed most of the foundational coursework in mathematics and science for engineering. Over the next two to three years, I will complete the remaining upper-level coursework in the engineering curriculum. During this time, I also plan to acquire job experience with a local firm via USA's College of Engineering's co-op program. Aside from formal coursework, during the next five years I also plan to further develop skills and knowledge through self-directed study and learning. This will involve learning the requisite programming languages relevant for robotics and micro-controllers, as well as exploring electronics design projects at home utilizing open-source hardware (e.g. Arduinos). I also plan to foster such skills through involvement in local robotics clubs and meet-up groups were I can work on projects with others sharing these same engineering interests. Such skills are highly pertinent to engineering and will translate well to a career in the aerospace industry. After the completion of my studies, my long-term career goal is to obtain employment with a company focused on the development of robotics for specialized applications. More specifically, I am interested in robotics as applied to space exploration and planetary science research. In consideration of this, my ideal career would involve working for NASA, a related federal research agency, or a private aerospace firm. Alternatively, I am also interested in the medical applications of robotics. I believe there will be a growing demand for such medical applications and expertise, not only in the private sector, but also in governmental aerospace projects. The medical applications of robotics will be essential in any future long-term human space exploration. I find it an exciting career prospect to be a member of a team working on the development of robotics for use in any of the aforementioned contexts.

Hometown: Geneva, Illinois
Congressional District: IL 14
Advisor: Professor John W. Steadman

High School: Geneva Community High School
Congressional Representative: Randy Hultgren
Career Goals:
I feel that spending time working in a challenging environment will give me an opportunity to grow and learn from those more experienced than myself, and therefore plan to pursue a position in industry. Over the next five years of my career I intend to learn the fundamentals of the engineering profession and gain irreplaceable experience. During this time, I will evaluate the various options for graduate degrees, especially focusing on furthering my career in the business of engineering by obtaining an MBA, or perhaps by becoming a subject matter expert if I am more drawn to the technical aspects. This decision can only be made after spending suitable time in industry and taking into account which aspects of my job I enjoy the most. I would attend a graduate program where my previous experience would provide a solid basis for the application of the new material. After graduating, I would like to work for a company with a large focus on research. If I choose to continue down the business route, I would like to focus on project management. Working in project management would provide an excellent opportunity to be a part of many unique and challenging projects where I would not only have to rely on my technical expertise, but also make important business decisions. The opportunity to watch a project being built that you played a part in would be a very rewarding opportunity and one of the reasons I decided to pursue a career as an engineer in the first place. In efforts to cultivate a sustained interest in science and contribute to the future of science in engineering, I intend to seek out a position as an educator toward the end of my engineering career. Cultivating an interest in STEM fields amongst a younger generation is paramount to the continued development of the engineering and science. I hope to work in an underserved area in efforts to spread the wonders of science to neighborhoods and communities that have a history of a having a poor math and science background. I attended a similar school and was very fortunate to have a few great instructors who conveyed a deep passion for science and ultimately inspired my career in chemical engineering. I want to end my career full circle and inspire that same ambition in the younger generation.

Hometown: Warden, Washington
Congressional District: WA 4
Advisor: Professor John W. Steadman

High School: Warden High School
Congressional Representative: Dan Newhouse
Career Goals:

My short term goals have a lot to do with my previous research experiences. For instance, at the University of South Alabama, where I am currently involved in research, my lab uses a bioreactor system - an in vitro environment that mimics the function of the human cardiovascular system - for observing the behavior of endothelial cells under various arterial conditions. Moreover, at Rensselaer Polytechnic Institute I participated in a degradation study comparing the characteristics of two polymers - poly-caprolactone (PCL) and poly-l-lactide (PLLA). These experiences have encouraged me to pursue a graduate degree in biomedical or mechanical engineering research after I obtain my bachelor’s degree in mechanical engineering. In the long term, I would like to be engaged in research that involves energy efficiency and/or the design of biomedical devices. I choose these topics because they both apply to optimizing the use of resources. Personally, I have always imagined how comfortable I would feel if I were stranded on an island and were forced to come up with a way to survive on my own. These thoughts engendered my concerns for those who lack the resources to protect themselves or their environment. Hence, the research questions that interest me the most usually deal with minimizing the cost and complexity of newer technologies - such as energy efficient appliances or biomedical devices - in order to make them more readily available to others. Aside from my academic endeavors, I have always hoped that my profession would allow me to travel. Fortunately, I have already been able to enjoy a few excursions engendered by my research opportunities. In fact, I have been applying for more summer research programs and, so far, I have been invited to participate in the SROP program at the University of Michigan. Overall, pursuing a career that provides the opportunity to travel, entertains my research curiosities, and enjoy a community of people that think the way I do makes me feel comfortable continuing the path that I have begun.

Hometown: Lucedale, Mississippi
Congressional District: MS 4
Advisor: Professor John W. Steadman

High School: George County High School
Congressional Representative: Steven Palazzo
Career Goals:

My short-term career goals include obtaining an electrical engineering position in the aerospace industry working specifically with electronics and avionics. I believe my professional experience as a commercial helicopter pilot and a certified airframe and power plant mechanic will enhance my ability to not only bring cutting-edge technology to the table, but a practical perspective as well. I am driven to be the best at what I do, and I want to work in a field where I will have opportunities to strengthen my skills, take on challenging and interesting projects, and work with experienced professionals willing to share their knowledge. I regard some of the most innovative thinkers in the engineering field as working in the aerospace industry, and that is part of the strong draw I have to this area of industry. As I look beyond the immediate future, I would like to broaden my career in such a way that I may support and enhance the electrical engineering field while developing solid skills leading to a path of inspired innovation. I see myself as not only a team member contributing to projects, but as a team leader, leading a project team to accomplishment and success. I want to be a positive force for engineering ideas in the field and contribute to the US’s ability to lead technological advances globally. The common goals of my career, both short-term and long-term, include pursuing graduate education and degrees, working in research and technology to bring additional innovations and efficiencies to industry forefronts, obtaining my license as a professional engineer, and developing interest in this field for younger generations. I have a strong desire to encourage and nurture teens to pursue careers in the science, technology, engineering and mathematic (STEM) fields, and in particular in underserved populations.
Career Goals:
Presently, I hope to secure an internship in the Space or Earth Sciences field through the DEVELOP program or the United Launch Alliance. After hopefully publishing my undergraduate thesis, and if I am not working full-time, I am looking at going to graduate school to earn a Master's or a Doctorate of Philosophy. Over the next twenty years, I would like to have a stable job which I enjoy either as a researcher or a technician.
Career Goals:
In five years, I plan to be stepping into my professional academic career after just obtaining my Ph.D. in Aerospace Engineering. As a research professor in the areas of fluid mechanics, dynamic simulation, and controls system design, I would like to be at the forefront of design and innovation of aerospace technologies. I am passionate and excited about the field of aerospace engineering where I can teach and mentor aspiring engineers and significantly give back to my community by advancing research in the field. As a professor just coming out of graduate school, I know that I will have a lot to learn from my peers, and I will continuously develop and improve my teaching strategies. I will remain involved with STEM education through programs similar to Jubilee BEST Robotics and Engaging Youth through Engineering (EYE), as well as help with projects that are beneficial to the community and environment like Humana Playground Builds and Alabama Coastal Cleanup. As a graduate student working on aerospace-related research, I would assist in the development of the program and encourage students to become involved and pursue aerospace engineering studies. In twenty years, I plan to have contributed to the advancement of aerospace engineering through published research in several peer reviewed scholarly journals and presented work at professional conferences. As an educator established in my profession, I will continuously work to improve my ability to lecture and teach students about engineering. I would like to have had the opportunity to work at a national research laboratory. In twenty years, my daughter will just be entering college, and I hope to serve as her role model and motivate her to pursue a career in science or engineering so that she too can contribute to the future of science and technology. At nine years old, she will hopefully be inspired by the colony mission that will be sent to Mars, just as I have been inspired by many of the NASA missions, and have the desire to be a part of the aerospace community, just like her mom and dad.
Career Goals:

I have wanted to be an elementary school teacher for as long as I can remember. Working with children is my true passion. After I graduate with my bachelor's degree from the University of South Alabama, I plan to work in an elementary school in the state of Alabama. I would love to teach kindergarten through second grade, but I will be happy with any grade. I also plan to pursue my master's degree in early childhood education from the University of South Alabama as soon as I complete my bachelor's degree. I am interested in helping children in underprivileged areas learn and understand the extreme necessity of education and higher education in order to be successful. My ultimate goal is to touch the lives of children and make a difference daily. I want to strive to constantly better myself to provide the best possible education for my future students. I desire to be a lifelong learner and work to gain knowledge to help my students in all areas of education and life.
Career Goals:

My short term goal is to complete my doctorate of science in systems engineering. On top of the standard curriculum, I will conduct research that will provide invaluable experience in design, fabrication, optimization, data acquisition, and data analysis. I will apply the systems engineering principles from my courses to complete the design of the high speed spectral imaging system. I will collaborate with students, faculty, and outside companies to fabricate and build the system. This experience will give me valuable insight into logistics and supportability. I will also learn to adjust hardware parameters to attain a specific outcome during the optimization process. Data acquisition and data analysis will further my pre-existing experience with traditional research evaluation methods. In the long term, I would like to do research and design for the industry or government. I enjoy the challenges presented by producing novel devices, systems, processes, and solutions. I especially enjoy working with strong interdisciplinary teams. I would like to bridge disciplines within science and engineering. This could be work linking biology, medicine and engineering to develop practical, robust methods to assess and design solutions. One such concept is the modeling of biological systems. With understanding of chemical engineering processes, biology, and physiology it should be possible to effectively model organisms. From there, it should be possible to influence and control these systems. A greater understanding of varied and detailed scientific and engineering theories should allow for a method by which multi-disciplinary fields can be further utilized. Finally, at some point I would like to move into academia in the form of teaching and potentially research. I enjoy educating and helping people immensely, and I have tutored a number of my fellow students. Additionally, I have been a part of undergraduate research programs to help guide young researchers. Science builds off of previous experience. Thus, after getting the requisite experience, I would like to contribute to the building process.
Career Goals:
My short term goals include graduating college as I would be the first in my immediate family to graduate from a 4-year institution. From there I will go into the workforce with a company that matches my interests. I have a desire to go into control systems. I plan on working hard to continue to move up within the company to become a CEO in 15-20 years.
Career Goals:

I have a few short-term goals that I hope to accomplish within 5 years after graduating Tuskegee University. I want to receive my Master’s degree in Electrical Engineering at Vanderbilt University. Then obtain an entry level job with a company with a high use of electronics and technology. I want to be able to gain a great learning experience within 5 years so that I can manage my own division at a company. My long terms goals are more on the business side of my career. After 20 years, I plan to have my own engineering technology company. Also, I want to own a small Starbucks franchise. My last long-term goal is to be a high school football coach so I can give back to the game I love.
Career Goals:
My short-term goal is to not only graduate from Tuskegee University but to get a patent by December 2017 for an invention that I have, get a job offer from a company that is moving along with the speed of technology and of course get married. I know that sounds so cliché but I believe in work-life balance. My long-term goal is to invest in my future employer and save as much money as possible so that I can retire early. I also have a desire and plan to start my own company where I will be the founder but not the CEO. I know that Tuskegee University is not only equipping me for my future in engineering but my desire to be great wherever I go in life. I am a proud student at my HBCU and I hope to be able to finish my education at such a prestigious University.
Career Goals:

The Electrical Engineering program at Tuskegee University has exposed me to many opportunities. My mindset has been broadened and I know for sure that I am on the right path to accomplish all my goals in life short and long term. At this very crucial and important time in my life I have been setting the foundation for my future. I am currently a sophomore Electrical Engineering major, Bio-Ethics minor. In my eyes an engineer is a hero; we make the world a better place. I didn’t wish to pursue a degree in engineering just because I achieve academic excellence; I have different reasons and goals. For the next five years I wish to work extra hard while I am still young and my mind is sharp, as I have no huge responsibilities such as a family. This summer I will be interning at United Technology and while there my goal is not only to finish my internship while representing my school; I would also like to start the six sigma program. My university does not offer this program so I plan to start it on my own. During the upcoming school year, I will be starting a non-profit mentoring program and doing research within my electrical engineering department. For the rest of my school years, I will continue doing research within my major, complete an internship/co-op, work on my six sigma certification, and my non-profit mentoring program. All while maintaining my studies through graduation. Upon graduation my main focus is exposure. When I graduate, I plan to work for a fortune 500 company for a couple of years then go back to school to get my Masters in Business and Administration. The reason I choose to go back to School and get my MBA is because of my long term goals. My ultimate goal is to become a general contracting manager and oversee large projects in suburban and urban areas. I would like to work on large projects that will increase revenue, job opportunities and education in struggling communities. Around this stage in my life, I also plan to start a family. I hope to use my experience from college and the corporate world to help me build my own Engineering firm.
Career Goals:

Focusing on my short-term goals, the Alabama Space Grant Scholarship allows me the opportunity to continue my educational journey. The scholarship frees my mind from the worries of not knowing if I will be able to return to the university from one semester to the next, which in turn allows me to be more focused on my academics. As a hard working student, I anticipate receiving an internship with NASA, SMART, Boeing, Lockheed Martin, or Raytheon, which would be the opportunity of a lifetime. The thought of being mentored, trained, and molded into an outstanding aerospace engineer by the nation’s top scientist and engineers motivates me to excel in my course studies. I am striving to attain a 4.0 grade point average and graduate from the historical Tuskegee University with honors in the spring of 2017. Upon graduation, I hope to be employed and moving up the corporate ladder for one of the five companies mentioned above. After advancing on the job in my career field, becoming financially stable, and starting a family; I will set out to reach my ultimate goal. This goal is to start a summer mentoring program, geared toward young ladies in middle and high school with a strong academic background in mathematics, science, and technology. This program would be a four-week summer camp which gives the mentees an opportunity to get hands on experience in the area of aerospace and aeronautics. The program will be designed to mentor, train, and mold the young ladies by way of fun educational activities. My hope is to groom successful future female engineers.
Career Goals:

As a sophomore Electrical Engineering major at Tuskegee University, I have set many goals for myself. I take the goals I have set very seriously, and I am very determined about achieving them. Along this journey as a college student, short and long-term goals have motivated me to continue working hard. I have witnessed that college is very competitive and so I have set a short-term goal of maintaining a grade point average of 3.5 or above. Keeping this grade point average puts me in the best position for graduating on time, thus being a worthy competitor for scholarships and internships, and graduating in the very top percentile of my class with honors. Another short-term goal is to work effectively as a math tutor for Tuskegee University. Since elementary school, I have excelled in all disciplines of math and I would love to share my knowledge by tutoring college students for the university. Tutoring also furthers my understanding of course material while building relationships with the students on and off campus. During the upcoming summer, I want to work with a company in the engineering field. There are several companies where I would like to intern: Alabama Power, Chrysler, BMW, and Lockheed Martin to name a few. Essentially, I want to further my education and experience from an engineering perspective. Along with my adventures as a college student, I have established long-term goals as well. While maintaining academic excellence, I plan on graduating from Tuskegee University with an electrical engineering degree and a concentration on power. I will be the first of my family to graduate from college. Before graduating, I plan on having an offer as a full-time employee in the engineering field for a company. I want to maximize my experience as an engineer and gain as much knowledge possible. I want improve my financial situation by being able to pay back school loans, clear any debt, and take care of my family. With my electrical engineering degree, I want to work with power lines, wiring, and electricity. I have also thought about doing some research with energy and discovering a way to be more energy efficient. I have completed a project on solar panels and how they use sunlight to create energy. I was very interested in this research, and want to expand the use of solar panels by making them affordable along with educating society about them as an alternative.

Hometown: Detroit, Michigan
Congressional District: MI 14
Advisor: Professor Gregory V. Murphy

High School: Southeastern High School
Congressional Representative: Brenda Lawrence
Career Goals:

My first visit to the U.S Space and Rocket Center was in the fourth grade. As soon as I finished my tour, I knew I wanted to pursue my dream of being an American astronaut. My short-term career goals are my major focus right now because becoming an astronaut requires a great deal of experience. I have a strong interest in the development of human space flight. After I receive my degree, I want to pursue a career that will give me hands-on involvement with next generation aerospace vehicles such as SLS by NASA, CST-100 by Boeing, Dragon by SpaceX, or many others. Because I have not found a specific subject of aerospace studies that I am completely passionate about (aerodynamics, design, structures, etc.), I would be open to participating in a rotational program at my employer. I believe a rotational program would benefit me by gaining exposure to different projects and environments. Ultimately, it would help me decide what I want to do with my career long term. As stated earlier, my long term goal is to be an astronaut. As cliché and far-fetched as it may be, astronauts are the most fascinating of all careers to me. All of my career moves and short term goals are set up to help me fulfil this now realistic dream of becoming an astronaut.
Career Goals:
The past 3 years at Tuskegee University have been the most influential years of my entire life. Deciding to major in Electrical Engineering was the best decision I could have ever made coming to Tuskegee. I was hesitant my freshman year to major in engineering because of the perceived difficulty level. Today I stand before you in the top 10% of my class, 3 corporate internship experiences under my belt, and on the way to graduating summa cum laude. My corporate internships have all been with General Electric Aviation in Cincinnati, OH. I will be returning to GE for my final rotation this summer of 2015. During my final role, I will interview for a full time position towards the end of the summer. If accepted into GE, I will enter their Edison Engineering Development Program where I will have the opportunity to pursue a Master’s degree in Electrical Engineering paid for by the company. I am very interested in learning more about control systems in my future job. Writing control logic is an art form in my eyes. Experts who understand the basics of writing, certifying, and fixing control logic are indispensable assets to any engineering company.
ASCENT
Alabama Space Grant Community College Engineering Transfer Program
**Career Goals:**

Even as a child, I wanted to help the world and I hope to do so by completing my Civil Engineering degree at the University of South Alabama. I believe my passion for helping the environment and making it safe for people makes me a perfect fit for Civil Engineering. Currently I attend Faulkner State Community College, and I plan to get my Associates degree here then transfer to the University of South Alabama. There I will study Civil Engineering. With the start of my second year, I plan to apply for an internship/co-op. By my senior year, I hope to gain employment with an engineering company. After 5 years’ experience with that company, I will go back to get my Professional Engineering license. With this license I will not only make more money I will also be able to sign off on blueprints and plans.

**Hometown:** Satsuma, Alabama  
**Congressional District:** AL 1  
**Advisor:** Professor John W. Steadman  

**Community College:** Faulkner State  
**Congressional Representative:** Bradley Byrne
Career Goals:
I have always been fascinated by how things work from a young age and have always tried to devise a way to make something better or more efficient. I have several ideas that I want to create and build after earning my degree in Engineering. I plan to transfer from Faulkner State Community College to a 4-year university. I am currently looking at transferring to the University of Mississippi State in the fall of this year. After completing my degree at a 4-year university, I hope to find a good company to start my career. Later I hope to start my own firm and create, design, and build my own ideas.
Career Goals:
My first goal is to receive my diploma in Mechanical Engineering. Then hopefully achieve my career goal of employment at a NASA center as a mechanical engineer working on rocket thrusters. After a tour I went on of a NASA center and I saw things that were a combination of factors I am looking for in a mechanical engineering program, so I knew this was for me. I am looking for a program that has a lot of mechanical engineers who are able to help until I am comfortable with my skills. NASA has what I am also looking for in a career - heart. I love a challenge and challenging myself, and I believe this is the reason why I would love working at NASA.

Hometown: Mobile, Alabama
Congressional District: AL 1
Advisor: Professor John W. Steadman

Community College: Bishop State
Congressional Representative: Bradley Byrne
Community College Scholar
Sean David Mayers
Pre-Engineering
May 2018

Career Goals:

My short term plans are to be hired on at NASA Marshall Space Flight Center within the Engineering Directorate. To achieve this goal, I will obtain a Bachelor's of Science in Aerospace Engineering from the University of Alabama in Huntsville after transferring from Calhoun Community College. Interning with NASA at Marshall Space Flight Center has provided a unique insight on the engineering career path. My goals include learning more about space policy, systems engineering, deep space habitats & advanced propulsion technology. Space policy is extremely important and affects our programs here at NASA. A good understanding of how to make better decisions is imperative. Systems Engineering provides a look at the whole picture when it comes to making technical decisions. In systems engineering there are varying processes which make up the whole. These processes achieve together what cannot be accomplished individually. When developing a heavy-lift launch vehicle there are many things to consider. Deep space habitats and advanced propulsion technology are the key to a successful mission to Mars and back. A good understanding of these varying facets provide a unique depth of insight pertaining to space travel. I believe in NASA and want to be a part of the next generation of game changing engineers. In the next five years my goal is to learn as much as possible from NASA so that one day I am able to pay it forward and impart that knowledge.

Hometown: Madison, Alabama
Congressional District: AL 5
Advisor: Professor John W. Steadman

Community College: John C. Calhoun
Congressional Representative: Mo Brooks
Career Goals:

Upon graduation, I plan to either work with Southern Company or Chevron as an electrical engineer. I have been selected for a co-op program next summer at Barry’s Steam Plant, and will use this experience to help prepare for my future career. I would like to stay working in the Southeastern area of the United States, but would entertain other locations if they have the right opportunities for my career goals.
Career Goals:
I am working toward completing a General Education degree with a major in Pre-Engineering. After completing my coursework at Calhoun, I will be transferring to the University of Alabama in Huntsville. My goal is to work in the field of Aerospace Engineering or Robotics. I have completed 39 hours at Calhoun with a 4.0 GPA, and have made the President’s list each semester since I began there. I have been honored to receive both the Presidential Award made possible by the Jim Tucker Scholarship and the National Space Club Engineering and Science Scholarship. Over the years, I have developed an avid interest in computers and robotic technology. I have a strong aptitude for programming which has lead me to explore many different programming languages. Among the languages I have used, I have extensive working knowledge of C++ and Python. Additionally, I have completed several classes on programming video games utilizing the game engine, Unity. Over the years, I have explored the use of various computer operating systems including Linux. I also have several years of experience involving installing and maintaining servers; with considerable hands-on experience in building and repairing computers.
Career Goals:

After considering many career paths, Engineering was the one that interested me the most. Engineers are a major foundation for our society. Without them we would not have most of the necessities we use in our everyday lives. It is amazing to think that I will be a part of this in the near future. A major quality I possess that sets me apart from others is my ability to work in a group. During high school I was heavily involved in extracurricular activities that required working with other students of different ages, cultures, and work ethics. Through this process, along with working on a team in several jobs, I have gained experiences and lessons that can assist me with any task. I am content knowing that what I did at a younger age will assist me in my profession as an engineer. Finding a job in any profession can be difficult, especially in the medical field. I know that by majoring in Engineering I will not only be doing something that I love, but I will also have many options to choose from. Engineers work in all sorts of environments from classrooms to remote wilderness areas. Exploring diverse communities is something I enjoy along with working with children. After graduating from Faulkner State Community College in the Spring of 2016, I plan to transfer to a four-year college or university to obtain a bachelor’s degree in Mechanical Engineering. From there, I want to find a job that is suitable for myself and that will allow me to put all that I have learned through the years to use. I hope that after obtaining my Engineering degree I will be able to meet many inspirational leaders. I also hope to be able to travel and to expand my horizons.
**Career Goals:**

If anyone has hopes to have a successful future, it is best that they plan ahead and set goals for what is wished to be accomplished. I have goals that I have set for myself and wish to conquer over the next five years. For a start, as I continue with college, I wish to obtain an internship position with NASA during the summer in hopes of gaining experience for my future career of engineering. As I finish up my associates at Bishop State Community College, I plan on pursuing my Bachelors in Mechanical Engineering at Auburn University. After getting my bachelors, I hope to begin an engineering career at NASA in which I will apply the experience I have gained over the years.

**Hometown:** Mobile, Alabama  
**Congressional District:** AL 1  
**Advisor:** Professor John W. Steadman

**Community College:** Bishop State Community College  
**Congressional Representative:** Bradley Byrne
Career Goals:
I have always wanted to figure out how fast a car can run, how the air conditioner can control the temperature, and how the plane can fly in the air. I am even more interested in those things as I’ve grown older. Designing and assembling are my favorite too. My hobbies and my personality are what make me want to become an engineer in the future. After finishing this school semester, I will attend summer classes and try my best in the next semester to get a full scholarship. Having completed 2 years of general study at Bishop State Community College, I would like to enroll in the Navy. I want to contribute a small part of my life to serve and keep peace for the United States. Besides being a soldier, I am going to keep moving on with my dream to become an electrical engineer. After I finish my education, I will apply for a job in the military. These are my plans, dreams, and fate for what I will try my best to achieve in the next 5 years.
Career Goals:

I have always wanted to be involved in an occupation related in some way to math. After much consideration I decided Engineering was the career plan that I wanted to pursue. Engineering is something that interested me for many reasons. The first of which is, it is heavily related to math. Math has always been something that intrigued me, I have always found math to be straight forward and to the point. Whereas with other subjects, such as English, the answer is always complicated. The second reason that I am interested in engineering is it involves the real world. It involves the way systems work together, and getting them to cooperate. You aren't just sitting around taking integrals of random shapes for no reason. The third reason is that engineering appeals to me because it is always a challenge. I don't enjoy being bored, I have always tried to make things challenging. As such, I have been taking all of the pre engineering courses that I can while enrolled at Faulkner State. In the future I plan to become an engineer in the Marine Corps. I plan to do this by attending the Naval Academy, there I will earn my degree in Mechanical Engineering. I will be applying to them this year, and will be attending the academy the following year.

Hometown: Bay Minette, Alabama
Congressional District: AL 1
Advisor: Professor John W. Steadman
Community College: Faulkner State
Congressional Representative: Bradley Byrne
Career Goals:

I believe it was my middle school science fair projects that really sparked my interest in the exciting fields of math and science. Fast-forward eight years and I am about to begin my Sophomore year of college on the fast track to obtaining a Chemical/Biological Engineering degree. Choosing a community college to begin my college journey was a decision I still stand by today. The learning opportunities that Bevill State has provided me with have without a doubt prepared me well for my next collegiate stop and beyond. I understand that by choosing what some say is the hardest engineering discipline, a real challenge lies ahead. However, I have heard from too many -- their personal stories of failure and giving up on their dreams. Stories like those keep me motivated. However, an ever-present interest in medicine has my sights fixed even higher. With an Engineering degree, especially with the Chemical/Biological tag, I should be a wonderful candidate for medical school. My rural hometown of Fayette, Alabama, is in need of quality healthcare and I believe I could assist in providing the quality deserved in Fayette.
Career Goals:

My interest in engineering is rooted in my love of knowing how things work and interact with the world. During my senior year of high school, I became interested in Classic American automobiles and was lucky enough to receive a 1971 Cadillac El Dorado to drive during college. I have enjoyed working on this car and was inspired to take a special topics automotive mechanics class at the technical campus of my community college. I was able to further develop my ability to understand mechanical systems during this class, but found myself desiring to know how such systems were designed. I plan on graduating from the University of South Alabama with a Master’s degree in Mechanical Engineering and working as an engineer to make transportation safer and more efficient.
Career Goals:

Since the seventh grade, I have been interested in becoming an engineer, and I have continued to pursue my dream today. Specifically, I am majoring in Civil Engineering. I plan to finish my Bachelor’s degree at the University of South Alabama, and will also participate in their engineering club. My plan is to find a summer co-op that will lead me into the direction of my career as a civil engineer. Once I decide on a specific field in Civil Engineering, I hope to find full-time employment. Finally, I plan to also work on my Master’s degree and become a better asset to my future company.
ASCENT Scholars

Community College Scholar
Brittney Nicole Terry
Pre-Engineering
May 2018

Career Goals:

I had an AP Statistics teacher in high school that allowed us to be creative and have collaborative discussions in class. One day, we discussed statistical data on women in STEM fields. This led us to choose demographics as a subject in which to do our research. This led me to understand how important my majoring in engineering truly is and how important it is to obtain my Ph.D. I am interested in engineering not only because I enjoy research, mathematics and chemistry, but I feel as if I have an obligation to dedicate my time and intellect to the STEM fields. I am always so excited to discover new things about mathematics and especially research. I want my entire life to be submersed in science and mathematics, and infused with a little imagination for new discoveries and to make dreams come to life. The Internet and other computer programs were just thoughts in someone’s imagination only a few years ago, and now it is present and available to everyone. I want to make a difference in the world like Bill Gates. I want to be a researcher like Isaac Newton and solve problems like Archimedes. My goals for the next five years is to finish my Master’s degree in Materials Engineering and enroll in a doctoral program, majoring in Aeronautical Engineering. I plan on having at least four internship experiences with one preferably at a company like Microsoft or Alabama Power. I plan to be a leader in my college through their Honors College and Ambassadors Program. I plan to network with different colleagues and professors, including executives at my internships. In five years, I plan to finish out with my Ph.D., working for a professor in my field while at school.

Hometown: Birmingham, Alabama
Congressional District: AL 7
Advisor: Professor John W. Steadman

Community College: Lawson State
Congressional Representative: Terry A. Sewell
Career Goals:

My five-year plan consists of gaining knowledge I can employ within the engineering field. I plan on graduating with a bachelor’s degree in Chemical Engineering from a four-year college of my choice. Each summer throughout my four years I will apply for internships with NASA, because one day I would like to be employed by NASA.

Hometown: Mobile, Alabama
Congressional District: AL 1
Advisor: Professor John W. Steadman

Community College: Bishop State
Congressional Representative: Bradley Byrne
Career Goals:
I have always been interested in computers. When I was ten years old, I convinced my grandfather to help me build my first computer. In high school I tried to take as many math and science classes as possible. I love math, it has always made sense. I started at a technical college studying computer programming and knew that is what I wanted to do. Unfortunately, my education fell off track in 2003 when my mother passed away. It has taken me ten years to get back on track, but I am ready. I Plan to leave Bishop State with a degree in American Sign Language, but I am also taking as many math classes as I can. When I transfer to the University of South Alabama I will finally get to complete my dream of becoming a computer engineer. Maybe one day I can also teach computers and math to others.
Career Goals:

Industrial Engineering has been my interest for the fact that I am naturally adept to understand the process and functionality of systems. Since I always strive to simplify and better organize the process of any procedure, and after much research into the field, I feel that Industrial Engineering would strongly fit my ideal profession and make an enjoyable career path for my future interests. Engineering and military has been the most common professions in my family for as long as we can remember. Every generation in my family has served in the Armed Forces, and those who did not, have pursued careers as engineers. I am motivated by family traditions, the chance to put the knowledge that I have acquired, and the drive of accomplishment to complete careers in both areas. I had done my duty in the military, now it is time for me to pave a good path for my future and continue on with an Engineering degree. My 5-year plan starts with this summer, where I will be enrolled in Calhoun Community College, as I start taking the core classes required for the degree. From there I will stay at Calhoun until the summer of 2016 finishing the rest of my basics in Calculus, Physics, and the advanced Math until I transfer to UAH in the fall of 2016. When I transfer to UAH, I will have just the specific engineering courses left to take in Industrial and Systems Engineering where my graduation date is expected to be spring semester of 2018. During my last year at UAH, I plan on obtaining either a Co-Op or an internship with a company like NASA or Boeing. Once graduated, I hope the hard work and the skills that I posses will demonstrate to an employer that I am a suitable candidate for permanent employment with their company. Within the next 4 years, I plan to graduate with a Bachelor’s degree in Engineering and start a career with a great company that I can gain more experience with in my field. Staying with the company that I find and applying the skills that I learned in the school’s program, I hope that I will be on the track to upper level engineering or even a management position by the end of 5 years. Whichever path I go; my main goal is to finish with my Bachelor’s degree in Industrial Engineering.

Hometown: Decatur, Alabama
Congressional District: AL 5
Advisor: Professor John W. Steadman

Community College: John C. Calhoun
Congressional Representative: Mo Brooks