

# 2022 COSAM State of Inclusion

## Introduction

It is vitally important that the STEM fields place value on inclusion, equity, and diversity (IED) initiatives to make meaningful change in disparities of education, employment, and sense of belonging in members of the STEM community. These disparities emerge in the STEM fields in multiple ways along multiple axes of discrimination, from K-12 education all the way to STEM higher education employment (NSF, 2022). A few examples of these disparities include the employment of a greater proportion of science and math teachers with less than three years of teaching experience at K-12 schools with higher impoverished and other historically excluded student populations, the overrepresentation of men and individuals of White or Asian descent in the STEM workforce, and the underrepresentation of women and individuals of Black/African American or Hispanic/Latine descent in the STEM workforce. Not only are individuals from historically excluded groups underrepresented in the STEM fields, but these individuals also tend to feel more isolated and experience a lower sense of belonging in STEM than individuals who do not identify as a member of a historically excluded group (Rainey et al., 2018). In addition, individuals in the STEM workforce who identify as LGBTQIA+ are underrepresented (Freeman, 2020) and are more likely to experience career limitations (e.g., insufficient resources or opportunities for professional development), harassment, and the devaluation of their STEM expertise than their counterparts who do not identify as LGBTQIA+ (Cech & Waidzun, 2021). Taken together, these findings show that STEM has some work to do from a perspective informed by equity.

The Auburn University College of Sciences and Mathematics (COSAM) acknowledges that these disparities exist and are important to diminish. To do so, COSAM must intentionally, collaboratively, and consistently work to foster a campus environment that accepts, supports, and includes everyone. Specifically, the following offices and departments have collaborated to work towards meeting COSAM's IED goals: The COSAM Office of Inclusion, Equity, and Diversity; the COSAM Offices of Human Resources, Outreach, and Development; the Departments of Chemistry & Biochemistry, Geosciences, Biological Sciences, Mathematics & Statistics, and Physics; the Office of the Assistant Dean of Research; and the Graduate School. Individuals from these groups worked to accomplish eight specific goals, which were created, revised, and agreed upon by representatives who serve on the COSAM Inclusion, Equity, and Diversity Task Force. These goals are broken down into the short (i.e., one year or less), medium (one to three years), and long-term (three to five years) objectives of how COSAM aims to meet these goals, and each of the IED Task Force's goals are tied to addressing an issue which exists within STEM and/or STEM education.

As you will see throughout this document, COSAM's state of inclusion is being improved by the labor of the individuals, offices, and departments who are committed to lasting institutional change. However, for this work to be as successful as possible, there needs to be a continued commitment on the part of COSAM to strive towards equity within the STEM fields. This document is the first in an annual series, which will show the ways in which COSAM has met the challenge of improving our college's state of inclusion.

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## **Inclusion, Equity, and Diversity Statement**

The Auburn University College of Sciences and Mathematics (COSAM) values academic excellence, transformative research, and impactful service. COSAM believes that this can only be accomplished through cultivating an inclusive environment that draws on the strength of diverse people, experiences, and backgrounds. Key to COSAM's mission is fostering the development of culturally competent students, faculty, and staff through best practices and strategies that promote equity, inclusivity, and justice within and outside of the university community. Therefore, COSAM is committed to actively doing the work to address systems of inequity rooted in, but not limited to, racism, classism, sexism, ageism, ableism, and LGBTQIA+ discrimination in order to create a sense of community where everyone is able to thrive.

COSAM chooses to use the order of inclusion, equity, and diversity (IED) to describe our work rather than the popularized order of diversity, equity, and inclusion (DEI). We choose this order because at the forefront of our mission is not solely having a diverse coalition of students, faculty, and staff within COSAM, i.e., giving precedence to diversity over equity and inclusion. Rather, we strive to diminish the factors which make attaining a higher education degree or securing employment in a higher education environment inequitable for individuals from historically excluded groups, in addition to providing the support to retain these individuals in COSAM and establishing a campus environment free from discrimination and barriers to access. In other words, by prioritizing inclusion and equity, COSAM will create a culture which is supportive of and attractive to individuals from historically excluded groups, thus addressing diversity through the avenues of inclusion and equity.

## **COSAM Office of Inclusion, Equity, and Diversity Mission Statement**

The purpose of COSAM OIED is to empower and promote equity in the STEM fields by offering inclusive support and an open community environment.

## **COSAM Code of Conduct**

COSAM is committed to fostering an inclusive and welcoming environment. In events that are supported and/or sponsored by COSAM, all participants, including attendees, vendors, staff, volunteers, and all other stakeholders will conduct themselves in a professional manner that is welcoming to all participants and free from any form of discrimination, harassment, or retaliation.

A vibrant discourse is an important part of scientific discussions, but participants will avoid any inappropriate actions or statements based on individual characteristics such as age, race, ethnicity, sexual orientation, gender identity, gender expression, marital status, nationality, political affiliation, ability status, educational background, or any other characteristic protected by law. Disruptive or harassing behavior of any kind will not be tolerated. Harassment includes but is not limited to inappropriate or intimidating behavior and language, unwelcome jokes or comments, unwanted touching or attention, offensive images, photography without permission, and stalking.

Violations of this code of conduct policy should be reported to the meeting organizers. Sanctions may range from a verbal warning to ejection from the meeting to notifying appropriate authorities.

## COSAM Inclusion, Equity, and Diversity Task Force Goals and Progress

The COSAM IED Task Force was established in 2020. Between June 2020 and September 2020, the members have established a strategic plan consisting of eight goals attached to specific issues which exist in STEM and STEM higher education. The strategic plan was vetted by the COSAM community including faculty, staff, students, and alumni. The COSAM Accountability committee, which is made up of the Assistant Dean for Inclusion, Equity, and Diversity, and the committee chairs from each COSAM department's IED committee, was established during the spring of 2021. This group meets monthly to report on the progress being made towards the goals/objectives in the strategic plan as well as determine if there needs to be new items added. In the following section, each of the goals will be broken down into two areas. Specifically, the problems which each goal seeks to remedy will be described. Following this description, the smaller objectives which have been accomplished to meet the eight larger goals will be broken down into short-, medium-, and long-term objectives and discussed.

**Goal 1: Utilize an evidence-based, equity-minded lens to create policies and procedures that dismantle structural inequities that adversely impact marginalized communities.**

### *Problems being addressed.*

Inequity within STEM and STEM education have far-reaching implications, affecting many different aspects of the STEM fields. Direct effects of inequity within STEM on higher education include underrepresentation of women, Black/African American people, and Hispanic/Latine people who hold tenured faculty positions, a lower median salary of employed STEM doctorate holders who are women, and the underrepresentation of Black/African American and Hispanic/Latine people enrolled in STEM graduate programs (NCSES, 2021). In a related vein, an important factor in retaining students in STEM undergraduate programs is a student's sense of belonging in their STEM environment, and students from historically excluded groups tend to feel a lesser sense of belonging than do their counterparts who are White men (Rainey et al., 2018). Similarly, one's sense of belonging in STEM environments affects one's career interest such that individuals tend to decide to pursue employment in the STEM fields if they feel like they belong in a STEM environment (Xu & Lastrapes, 2021). It follows that a lesser sense of belonging also impacts physician (Ajayi et al., 2021) and faculty (Settles et al., 2019) retention. Taken together, this systemic exclusion works to diminish the pool of in-group role models for historically excluded students in STEM (Lawner et al., 2019) and produce fewer physicians who match with their historically excluded patients' racial/ethnic and gender identities, which has been shown to be related to positive patient experiences (Takeshita et al., 2020).

### *Short-term objectives (1 year or less).*

**The first short-term objective to accomplish for Goal 1 is to collaborate with Human Resources to develop clear and intentional strategies to increase the pool of diverse candidates seeking employment in COSAM.** In relation to this objective, COSAM OIED and Human Resources have worked to ensure employment opportunities are advertised in media that is geared towards individuals who are from historically excluded groups. The COSAM Accountability Committee developed an equity-focused search committee guide to be distributed to all faculty and staff to assist in infusing equitable practices in the hiring process. In addition, the Department of Chemistry and Biochemistry worked with COSAM OIED to advertise their

open searches in strategic locations and with particular organizations to reach a wider and more diverse candidate pool.

**The second short-term objective to accomplish for Goal 1 is requiring all members of search committees to undergo bias training.** This objective began to be addressed in 2018, before the Accountability Committee was established, and involved all chairs, deans, and search committee chairs completing the Fair Play workshop. This workshop focused on identifying conscious and unconscious biases which contribute to inequity in STEM, ways to combat these biases and how they influence hiring practices. Since 2018, all search committee members meet with Human Resources and the Assistant Dean of Inclusion, Equity, and Diversity, Dr. Kimberly Mulligan-Guy, to discuss equity in the search process and strategies to increase job posting visibility for diverse candidate pools. In addition, since the fall of 2020, all faculty search committee members are required to complete a bias training workshop. Finally, Dr. Jeffrey Fergus led an Advocates and Allies training for men faculty in Chemistry and Geosciences in 2020, to expand these faculty members' understanding and practice of advocacy and allyship.

**The third short-term objective to accomplish for Goal 1 is requiring a statement of inclusion for all job applicants in COSAM.** This objective was accomplished, and a statement of inclusion is a required aspect for all faculty and postdoctoral positions in COSAM. Moreover, the job application inclusion statement and IED Strategic Plan are prominently displayed on the COSAM website.

#### *Mid-Term Objectives (1-3 years).*

**The first mid-term objective to accomplish for Goal 1 is implementation of on-going inclusion, equity, and diversity training for all faculty, staff, and graduate students in COSAM.** In the 2021-22 academic year, the Department of Biological Sciences hosted both an implicit bias training and an LGBTQIA+ Allyship workshop. Additionally, Stephanie Shepherd from the Department of Geosciences, Vanessa Falcao from Chemistry and Biochemistry, and Min Zhong from Biological Sciences assisted in recruiting for a massive open online course (MOOC) in inclusive teaching and facilitated a learning community in inclusive teaching. Finally, the Department of Physics has invited colloquium speakers whose research focuses on topics related to inclusive teaching.

**The second mid-term objective to accomplish for Goal 1 is for COSAM to acknowledge and reward the invisible labor of research, service, and outreach that highlights inclusion, equity, and diversity in faculty and staff annual evaluations.** Moreover, this invisible labor should be considered in the promotion and tenure process. To address this objective, the COSAM Accountability Committee developed guidelines for inclusion of IED activities in faculty annual reviews/P&T across COSAM beginning during the 2022-23 academic year (which can be found [here](#)). In addition to recognizing the work faculty contributes to IED in research, teaching, and service, these guidelines also recognize the impact of the COVID-19 pandemic and other non-academic responsibilities on productivity levels. Additionally, COSAM OIED has established the Inclusive Excellence in STEM award, which highlights a student, faculty or staff member, and/or alumni who has shown commitment to inclusive practices in COSAM. Along with recognition, this award comes with funding for an equity and inclusion focused workshop or event for the award winner to design and implement.

**The third mid-term objective to accomplish for Goal 1 is to implement assessment tools, e.g., exit interviews, to improve the inclusivity of faculty, staff, and student hiring, recruitment, and retention.** In working towards this objective, COSAM OIED conducted a staff satisfaction survey in 2021, which focused on staff members' sense of belonging in the college. In a related vein, the Departments of Biological Sciences, Mathematics and Statistics, Physics, and Geosciences conducted surveys to assess feelings related to sense of belonging and diversity during the 2021-2022 academic year. Finally, the Assistant Dean of Inclusion, Equity, and Diversity, began conducting exit interviews with faculty and staff in 2020.

***Long-Term Objectives (3-5 years).***

**The long-term objective to accomplish for Goal 1 is to create leadership structures that allows all members of the COSAM community to have a voice in decision-making that impacts the college by increasing the utilization and effectiveness of shared governance.** The Department of Chemistry and Biochemistry has extended voting rights to non-tenure track faculty on all departmental matters, including hiring tenure-track faculty. Similarly, the Department of Physics has expanded voting rights to non-tenure-track faculty members. Additionally, graduate students in the Department of Physics have created a graduate student council, which regularly meets with departmental leadership. Finally, members with various roles within the Physics Department are currently developing a departmental strategic plan to address inclusion, equity, and diversity.

**Goal 2: Recruit, retain, and develop a diverse COSAM undergraduate student population.**

***Problems being addressed.***

Nationally, students who identified themselves as Black or African American comprised about 13% of all undergraduate students enrolled in 2019, White students comprised about 52%, Hispanic/Latine students comprised about 21%, Asian students comprised about 7%, Native American students comprised about .6%, Native Hawaiian and Pacific Islander students comprised less than .1%, and students who identified with more than one race comprised about 4% (NCES, 2022). When considering 2021 US census estimates, Black or African American people make up about 13.6% of the population, White people make up about 59.3%, Hispanic/Latine people make up about 18.9%, Asian people make up about 6%, Native American people make up about 1.3%, Native Hawaiian and Pacific Islander people make up about .3%, and people who identify with more than one race make up about 2.9% (US Census Bureau, 2021a). Taken together, this shows that higher education institutions in the United States as a whole are becoming more representative of the country's demographic makeup.

Auburn University strives to make our undergraduate population representative of the state of Alabama's demographics. Alabama residents fall into the following racial categories: 26.8% are Black or African American, 64.9% are White, 4.8% are Hispanic/Latine, 1.6% are Asian, .7% are Native American, .1% are Native Hawaiian and Pacific Islander, and 1.9% of people identified with more than one race (US Census Bureau, 2021b). Auburn University's undergraduate population demographics are as follows: ~5.3% are Black or African American, 77.7% are White, 3.6% are Hispanic/Latine, 2.5% are Asian, 2.4% identified with more than one race, and about .1% are Native American, Native Hawaiian, and Pacific Islander (College Factual, 2022). According to data from the Auburn University Office of Institutional Research, COSAM's undergraduate population demographics include approximately 18% students of color, with Black

or African American students making up the largest percentage of these students of color, comprising approximately 5% of the COSAM undergraduate population. To reach a community of students which is representative of Alabama's people, Auburn should strive to increase the enrollment of undergraduate students who identify as Black or African American, Hispanic/Latine, and Native American, Native Hawaiian, or Pacific Islander.

Though cultivating a community of undergraduates which is representative of Alabama's population is an end in itself, diverse teams of scientists tend to produce more impactful work and engage in greater creative, productive, and innovative work (Smith-Doerr et al., 2017). Importantly, these effects are seen most strongly not solely when a diverse team exists, but rather when that diverse team fully integrates diverse scientists through diminishing asymmetrical power imbalances between members. These findings highlight diversity's importance, but also support COSAM's position of valuing equity and inclusion in the STEM fields.

### ***Short-Term Objectives (1 year or less).***

**The short-term objective to accomplish for Goal 2 is to promote student leadership through student-initiated and student-led recruitment, retention, and community empowerment efforts.** In this vein, COSAM OIED has established five different initiatives with a focus on undergraduate students. Specifically, STEM Visitation Day put on by the OIED and is largely staffed by and features undergraduate COSAM students. STEM Visitation Day is a half-day recruitment event for high school students from historically excluded groups who are interested in STEM to become more familiar with what Auburn can offer them. The OIED also provides the STEM Summer Bridge for incoming first-year COSAM students, which is an intensive, four-week, in-person program which is designed to build a community of scholars, prepare students for the rigorous COSAM curriculum, and makes available a scholarship which can grow larger each year based on the student's GPA. In addition to these programs, OIED houses the undergraduate student organizations of the Multicultural Association of Pre-Health Students (MAPS), the STEM Coalition of United Learners (SCUL), the OIED Ambassadors and the Society for Women in Sciences and Mathematics. In partnership with the College of Engineering, COSAM OIED has assisted students in establishing an oSTEM chapter at Auburn University, focused STEM students who are a part of the LGBTQIA+ community. Relatedly, COSAM Outreach has established the EmpowHER conference, which is a small conference led by women, focused on increasing representation for girls in STEM. In addition, Outreach conducts Destination STEM, a recruitment program aimed at sixth through tenth grade students with a focus on students from under-resourced schools, who are interested in STEM which introduces these young middle and high school students to COSAM program offerings, faculty, staff, and students. Finally, Outreach provides students for rising first to eighth grade students to participate in Auburn's Science Matters Summer Academy.

In addition to the work being done by COSAM OIED and Outreach, the Department of Biological Sciences has created brown bag experiments to be completed by high school students, with a focus on reaching out to historically excluded student populations. The Department of Biological Sciences has also started an initiative to integrate undergraduate students in genetic counseling programs into COSAM outreach events hosted through the department. Moreover, the Department of Mathematics and Statistics was awarded a \$5,000 MAA Dolciani Mathematics Enrichment grant for 2022-2023 to develop outreach activities for middle and high school students. This grant will also be used to fund the training of undergraduate and graduate students to facilitate

these outreach activities. Finally, the Department of Chemistry, collaborating with the American Chemical Society, has begun a student-led program through the YES Chemistry grant to recruit K-12 students.

### *Mid-Term Objectives (1-3 years).*

**The first mid-term objective to accomplish for Goal 2 is to expand retention programs and support services for undergraduate students, particularly for those from historically excluded communities.** The COSAM OIED Undergraduate Mentoring Program was piloted during the 2021-22 academic year, with a total of 13 mentor/mentee pairs participating. The purpose of this program is to help historically excluded students in COSAM feel more connected to the academic community through building relationships with faculty. Furthermore, both the Departments of Biological Sciences and Chemistry and Biochemistry have created an inclusion, equity, and diversity statement to be included on all department syllabi. Finally, COSAM has hired a Career Development and Coaching manager to assist students in their professional and academic development.

**The second mid-term objective to accomplish for Goal 2 is for COSAM members to collaborate with the COSAM Office of Development to increase scholarship opportunities for students from groups historically excluded in STEM.** In this vein, COSAM has increased PLUS scholarships available to students. Moreover, the Pettijohn Scholars Program provides up to 10 Alabamian COSAM students/year from historically excluded groups a \$5000.00 renewable scholarship if they maintain a 3.0 GPA.

**Similar to the previous objective, the third mid-term objective to accomplish for Goal 2 is to develop new needs-based scholarship opportunities in conjunction with the COSAM Office of Development.** The Pepinsky Family Scholarship and the W. C. Neely Annual Scholarship were created to assist academically excellent students with financial need who identify as women in the Department of Chemistry and Biochemistry.

### *Long-Term Objectives (3-5 years).*

**The first long-term objective to accomplish for Goal 2 is to build on outreach strategies that include developing a K-12 pathway to COSAM programs for interested students, specifically targeting students from groups historically excluded from STEM.** In this vein, the Department of Biological Sciences has created STEM-focused coloring books for elementary school students which highlights diversity in science, and a second coloring book is currently being created. In addition, the Department of Biological Sciences has interacted heavily with the Wehle program through the AU Natural History Museum. Specifically, this half-day program is designed to expose 5<sup>th</sup> and 6<sup>th</sup> grade students from historically excluded groups to the natural world. In a slightly different vein, the Department of Chemistry and Biochemistry visited Montgomery area high schools where undergraduate and graduate students met with high school students to speak with students about opportunities with a chemistry degree. Moreover, Chemistry and Biochemistry faculty and graduate students assisted with facilitating the Greater East Alabama Regional Science and Engineering Fair (GEARSF), the Science Olympiad, the Graduate Women in Science (GWIS) Spring event, and Getting Under the Surface (GUTS), a science experiment activity for children and their caregivers.



### **Goal 3: Recruit, retain, and develop a diverse COSAM graduate student population.**

#### ***Problems being addressed.***

Similar to the issues that Goal 2 addresses related to inclusive science teams' creative and productive work (Smith-Doerr et al., 2017), COSAM strives for a graduate student community which is representative of Alabama's population. To reiterate, Alabama residents' demographic breakdown is as follows: 26.8% of Alabama residents are Black or African American, 64.9% are White, 4.8% are Hispanic/Latine, 1.6% are Asian, .7% are Native American, .1% are Native Hawaiian and Pacific Islander, and 1.9% of people identified with more than one race (US Census Bureau, 2021b). According to data from the Auburn University Office of Institutional Research (2022a), the Fall 2021 semester saw a total of 418 students enrolled in Master's or Doctoral level programs in COSAM. Of these, 43.8% identified as female and 56.2% identified as male. Considering the race/ethnicity breakdown of these students, 49.8% identified as White, 35.4% identified as non-resident alien, 5.5% identified as Black or African American, 4.5% identified as Hispanic/Latine, 2.6% identified as Asian or Asian American, and 2.2% identified with more than one race. To make COSAM's graduate student population more representative of Alabama's residents, recruitment efforts should highlight pathways for Black or African American and Hispanic/Latine students into COSAM graduate programs.

#### ***Short-Term Objectives (1 year or less).***

**The first short-term objective to accomplish for Goal 3 is to adopt a holistic graduate student admissions process.** This objective involves coordinating with COSAM Graduate Program Officers and using a rubric which evaluates cognitive and non-cognitive variables such as personal statements and letters of recommendation. To satisfy this objective, COSAM has published a description on how to craft a competitive letter of intent, which is available to potential applicants on the application webpage. In a slightly different vein, all COSAM departments made the GRE optional in 2020, leading to one of the most diverse graduate student classes in recent years. Excepting the Department of Mathematics and Statistics, all other departments will keep the GRE optional for graduate applications moving forward. In addition, COSAM OIED has begun paying the graduate application fees for historically excluded students who are recruited at conferences. The Department of Biological Sciences has created an international student handbook and added information on their website to increase transparency about the application and admissions process for these students.

**The second short-term objective to accomplish for Goal 3 is to promote student leadership through student-initiated and student-led recruitment, retention, and community empowerment efforts.** Graduate students across COSAM departments have created Discovering COSAM: Our Research Explained, which is a newsletter designed for students and faculty to share their research in a format that is aimed at a non-scientific audience. In addition, graduate student representatives are now a part of faculty meetings in the Departments of Biological Sciences, Geosciences, Physics, and Chemistry and Biochemistry, empowering graduate students to have a voice in departmental decision making.

#### ***Mid-Term Objectives (1-3 years).***

**The first mid-term objective to accomplish for Goal 3 is to develop intentional and personalized outreach strategies to recruit graduate students early and often, with an**

**emphasis on students from groups historically excluded from STEM.** Firstly, COSAM has a presence at several conferences which target historically excluded groups in STEM. These conferences include the National Organization for the Advancement of Black Chemists and Chemical Engineers (NOBCChE) annual conference, the Annual Biomedical Research Conference for Biomedical Students (ABRCMS), the Society for Advancing Chicanos/Hispanics and Native Americans (SACNAS) annual conference, and the Field of Dreams Math Alliance. In a slightly different vein, COSAM OIED has implemented multiple initiatives focused on this objective. Specifically, COSAM OIED's NSF-funded Collaborative Approaches Among Scientists and Engineers Research Experience for Undergraduates (CASE REU) is a 10-week program which provides students from across the country the opportunity to conduct cross-disciplinary research over the summer. Since 2018, 34 students have participated in the program (74% Black, 21% Hispanic/Latine, 62% women, 56% students from an HBCU or MSI). Finally, COSAM OIED in conjunction with GPOS, has designed The Initiative for Graduate Recruitment, TIGR, to offer students from historically excluded groups the opportunity to learn about graduate opportunities in COSAM. TIGR is tentatively scheduled for Spring 2023.

**The second mid-term objective to accomplish for Goal 3 is to expand retention programs and support services for graduate students, particularly for those from historically excluded groups.** COSAM OIED and the Office of the Associate Dean of Research host semesterly activities to allow graduate students across departments to interact and foster a community of scholars. In addition, based on conversations had with graduate student leaders, COSAM will host semesterly professional development opportunities for graduate students. Topics covered in these workshops include inclusive pedagogy and mentoring for self-care. Furthermore, COSAM OIED hosted a mindfulness meditation session in January of 2022. Whereas the level of graduate student attendance has not been as high as COSAM hoped, the Office of the Associate Dean of Research and COSAM is establishing a graduate student committee made of graduate student leaders from each department to assist in the development of initiatives to support the students most effectively. Finally, COSAM sponsored the first SUCCEED conference in 2018, which is designed to expose graduate students to career opportunities outside of academia. Dr. Haruka Wada of the Department of Biological Sciences has secured NSF funding to continue this program through 2024. The most recent SUCCEED conference was held in April 2022.

Individual COSAM departments have also contributed work to accomplish the first mid-term objective for Goal 3. Specifically, the Department of Physics was selected to host a Conference for Undergraduate Women in Physics for January 2023 and planning for this conference is ongoing. In addition, the Department of Biological Sciences has begun a professional development series focused on supporting graduate students in the department. Topics covered in this series include obstacles faced by international students, mental health awareness and support, impostor syndrome, self-advocacy, and the myth of "doing it all."

The Associate Dean of Graduate Studies hosted the first half-day graduate student orientation in August of 2022. This workshop focused on student mental health, creating healthy mentoring relationships, as well as covered basic information students need to know to be successful in their graduate programs.

### *Long-Term Objectives (3-5 years).*

**The first long-term objective to accomplish for Goal 3 is to establish mutually beneficial relationships with universities in the southeast, with an emphasis on HBCUs, MSIs, and community colleges to cultivate a diverse pool of graduate students.** Conversations between OIED, the Departments of Biological Sciences, Chemistry and Biochemistry, and Geosciences have begun with several HBCUs/MSIs to begin crafting mutually beneficial relationships. Institutions include Savannah State, the University of Texas Rio Grande Valley, Hampton University, UNC Pembroke, Georgia State and Florida A&M University.

**The second long-term objective to accomplish for Goal 3 is to generate funding for graduate school bridge programs that target individuals from groups historically excluded in STEM.** In this vein, the Department of Geosciences has submitted a grant proposal for the Advancing Earth and Space Science American Geophysical Union Bridge program. In addition, the Auburn University Certificate Program in Mathematics – Bridge to the PhD is currently in preparation. In addition, COSAM OIED submitted two proposals in the spring of 2021 to create post-baccalaureate programs focused on students from historically excluded groups, namely RaMP (with Paul Cobine, Chair of the Department of Biological Sciences), and EpScOR, a COSAM-wide program. An additional group in the Department of Biological Sciences submitted a RaMP proposal. Although none of the proposal were funded, COSAM OIED plans to resubmit RaMP during the next funding cycle. DBS has applied for funding through the Alfred P. Sloan Foundation to establish a bridge program with the University of Texas Rio Grande Valley, an Hispanic-serving institution, which is currently under review.

### **Goal 4: Recruit, retain, and develop a diverse COSAM faculty and staff community.**

#### *Problems being addressed.*

Similar to Goals 2 and 3, COSAM strives for not only a diverse but equitable and inclusive community of faculty and staff. An inclusive, equitable and diverse faculty and staff grants many benefits, including feeling more accepted in one's work environment (Spafford et al., 2006), improving diversity of perspectives in institutional decision-making (Guevara et al., 2018) and providing role models and cultural familiarity for students from historically excluded groups, an important aspect of diverse student retention (Museus, 2014). A diverse faculty also can lead to improved recruitment efforts for students from historically excluded groups (Davenport et al., 2022), and if an inclusive environment is also established, more productive and innovative work (Smith-Doerr et al., 2017).

#### *Short-Term Objectives (1 year or less).*

**The first short-term objective to accomplish for Goal 4 is to provide and support professional development opportunities for faculty and staff.** COSAM OIED and the Graduate School sponsored the first Postdoctoral Research Symposium in September 2021, which was attended by 25 postdoctoral fellows and is planned to become an annual event during Postdoc Appreciation Week. In addition, COSAM OIED collaborated with the Office of the Associate Dean of Research and the Graduate School sponsored the Auburn University Postdoctoral Fellows Association executive committee to attend the National Postdoctoral Association Conference. Data from the staff satisfaction survey was used to inform the creation of the Staff Retreat and

Awards ceremony, which took place in spring of 2021 and was attended by 80 COSAM staff members. During the retreat, staff took part in a professional development workshop and awards ceremony where staff were recognized for their contributions to COSAM, including awarding staff Lifetime Achievement, Outstanding Student Support, and Collaboration awards, among others. Moving forward, this staff retreat will occur annually in the spring along with additional professional development opportunities for staff in the fall.

***Mid-Term Objectives (1-3 years).***

**The mid-term objective to accomplish for Goal 4 is to establish mentoring and/or coaching programs for faculty and staff.** The Dean of COSAM established monthly Dean's Luncheons with new COSAM faculty to assist in navigating their role as a new faculty member. These luncheons include having meetings with each of the Associate Deans, the Office of Outreach, a mentorship session, a session focusing on the tenure and promotion process, and sessions focused on other topics the faculty members express interest in. In addition, the Department of Chemistry and Biochemistry established its Faculty Development Committee in 2020, which is chaired by the department's Faculty Development Officer. Its purpose is to elevate and broaden mentoring activities within the department and to assist faculty of all ranks in the advancement of their careers. Activities in this program include evaluating mentoring needs and strategies desired by faculty, facilitating mentor-mentee pairing, and facilitating lunch meetings and discussions among faculty. In addition, the Department of Chemistry and Biochemistry has created a mentorship program for faculty and graduate students, scaffolded by mentorship desire surveys, mentor/mentee pair selection processes and social lunches.

**Goal 5: Foster a more inclusive climate with a greater sense of belonging for all students, faculty and staff.**

***Problems being addressed.***

A sense of belonging in one's community is a vital aspect of creating an inclusive campus climate. Broadly, people tend to function best socially and psychologically when they have a high sense of belonging to a community (Hagerty, 1996). Considering student experiences, students' sense of belonging in their academic community has been shown to be related to their academic motivation, general student well-being, and student retention (Anderman & Freeman, 2004; Museus, 2014; Trujillo & Tanner, 2014). At the faculty and staff level, a greater sense of belonging is related to decreased absenteeism (Çıvgın & Aytemir, 2021) and professional commitment and engagement (Holleran et al., 2011; Leggon, 2018). Taken together, these findings assert that a sense of belonging is a boon to student, faculty, and staff performance, in addition to simply creating an environment where everyone feels comfortable and accepted, which is an end in itself.

***Short-Term Objectives (1 year or less).***

**The short-term objective to accomplish for Goal 5 is to create opportunities for alumni from historically excluded communities to be involved in COSAM.** In this vein, COSAM Career Conversations, or C3, has been established as a virtual forum which provides COSAM undergraduate and graduate students opportunities to learn about career development from successful COSAM alumni. In addition, COSAM OIED conducted an alumni engagement survey to gain a better understanding of how alumni from historically excluded groups are

currently involved in COSAM and in what ways they would like to be involved with COSAM in the future. The data garnered from the survey showed that respondents wanted to 1) be involved in student mentorship, 2) engage in student professional development activities, and 3) attend tailgates and other social events.

*Mid-Term Objective (1-3 years).*

**The mid-term objective to accomplish for Goal 5 is to create COSAM-wide speaker series which highlights the diversity of people and career paths in STEM.** Specifically, COSAM has established two series in this regard. The first of these is Our STEM Story, which was created by Ashley Williams through the Department of Biological Sciences as an opportunity to raise awareness about the contributions of historically excluded groups in STEM by highlighting their stories and the problematic context of research ethics throughout history. This speaker series has become a COSAM-wide initiative, rotating through being put on by different departments each semester. For example, in Fall 2021, the Department of Biological Sciences hosted Dr. Janina Jeff and in Spring 2022 Mathematics and Statistics screened the film, “Coded Bias,” and hosted a panel discussion afterwards. Similarly, the Dr. Anne Phillips Sassaman Lecture series was designed to highlight a woman in STEM each year, with a focus on those from an intersection of historically excluded identities. The speaker for Spring 2022 was Dr. Jamesa Stokes, a graduate of the Department of Physics and current Materials Research Engineer for NASA.

**Goal 6: Develop curricula, teaching, and scholarship which increases awareness of how inequitable practices and structural racism are embedded in STEM while advancing practices that support inclusion, equity, and diversity.**

*Problems being addressed.*

The first step towards enacting meaningful institutional change is acknowledging a problem exists (Clark, 2013). By first acknowledging that inequities in STEM and STEM education exist, a strategic plan to combat these inequities through intentional inclusion, equity, and diversity work can be established and implemented through collaboration among different entities in COSAM.

*Short-Term Objectives (1 year or less).*

**The first short-term objective to accomplish for Goal 6 is to create learning opportunities for students, faculty, and staff focused on real-world problems related to inequities in STEM and how they impact historically excluded communities.** The Department of Geosciences has participated in Unlearning Racism in Geosciences, URGE, which is a curriculum focused on providing tools and resources to help geoscientists to develop policies which improve accessibility, justice, equity, diversity, and inclusion. In addition, the Department of Physics has a team participating in the American Physics Society Inclusion, Diversity, and Equity Alliance. This Alliance is an initiative with a mission of empowering and supporting physics departments, laboratories, and other organizations to identify and enact strategies for improving inclusion, equity, and diversity within the discipline of physics.

**The second short-term objective to accomplish for Goal 6 is to develop an educational training program focused on equitable and inclusive practices.** In this regard, the Departments

of Biological Sciences and Geosciences have co-hosted multiple workshops about inclusive pedagogy, and the Department of Biological Sciences' Diversity, Equity and Inclusion committee holds regular office hours to assist faculty in developing inclusive pedagogy practices. Additionally, the Department of Mathematics and Statistics hosts three critical issues in teaching and learning workshops each spring, which focus on various aspects of student engagement and classroom equity. The Department of Biological Sciences has NSF funding for Fostering Ideological Awareness in the Context of Postsecondary Biology through Open-Source Course Modules.

In addition to the work accomplished by specific departments, COSAM as a whole has contributed to accomplishing the second short-term objective. For example, three COSAM faculty members have been trained as facilitators for the Inclusive STEM Teaching Project, and two Inclusive Teaching Learning Communities run concurrently with a massive open online course focused on inclusive teaching practices. COSAM has also collaborated with the Biggio Center for the Enhancement of Teaching and Learning to host inclusive teaching workshops, and a grant proposal titled Inclusive Design for Enhancing Active Learning in STEM (IDEALS) was submitted in July 2022.

**Goal 7: Strengthen communication between COSAM administration, faculty, staff, and students to create an environment where everyone feels valued and heard.**

***Problems being addressed.***

Different groups tend to have different perspectives and needs. By strengthening the communication between administration, faculty, staff, and students, COSAM can work to ensure each group's wants, needs, and perspectives are valued and considered when making a decision which affects them.

***Short-Term Objectives (1 year or less).***

The first short-term objective to accomplish for Goal 7 is to prominently display the COSAM mission, vision, IED statement, and strategic plan on the COSAM website, which has been accomplished. The second short-term objective to accomplish for Goal 7 is to create an effective system of communication to include all faculty and staff to ensure that everyone receives information pertinent to them. In this vein, COSAM IT has created individual listservs for undergraduate students, graduate students, Undergraduate Program Officers, Graduate Program Officers, and faculty, in addition to one for all COSAM employees.

***Mid-Term Objectives (1-3 years).***

**The first mid-term objective to accomplish for Goal 7 is to provide multiple accessible mechanisms for faculty, staff, and students to communicate with one another.** The Department of Geosciences faculty have established bi-annual retreats to address departmental-level matters, and the Department of Geosciences GPO and Chair host open meetings for all graduate students to attend each semester. In a related manner, the Department of Biological Sciences has created a listserv for postdoctoral fellows, increased the inclusion of postdocs in departmental events, allowed postdocs to promote their work through departmental research seminars, and has supported the Auburn Postdoctoral Fellows Association. Furthermore, the

Department of Chemistry and Biochemistry Chair holds open office hours and annual department-wide meetings.

COSAM generally has also contributed to this mid-term objective. Specifically, the COSAM Dean hosts semesterly town halls which are open to all students, faculty, and staff. In addition, the COSAM Office of Communications has established Share Your Good News, which allows faculty, staff, students, alumni, and parents to share stories that they would like included in COSAM Today. COSAM has also created COSAM Champions, which is an initiative staffed by volunteer students, faculty and staff to facilitate conversation and address and solve conflict through open yet confidential communication between parties.

**The second mid-term objective to accomplish for Goal 7 is to create an organizational structure chart on the website of all staff and their roles within COSAM to highlight overlapping responsibilities and emphasize how staff duties directly impact faculty jobs, resources, and decisions to foster a more positive dynamic between faculty and staff.** In this vein, the Department of Chemistry and Biochemistry created an onboarding guide which outlines all the duties for their staff members, required training for graduate students, lab safety, facility protocols, departmental resources, and a department directory. COSAM OIED has updated this onboarding guide, adding various COSAM and university resources. Each department has received a copy of this document and is using it as a template to create their own departments' guides.

**The third mid-term objective to accomplish for Goal 7 is to expand opportunities for informal interactions between faculty, staff, and students to improve the quality of their interactions.** The Department of Chemistry and Biochemistry hosts monthly lunches, their Faculty Development Committee hosts picnic lunches at the arboretum, and their IED Committee hosted a picnic and film viewing for the entire department. In addition, the Department of Physics hosted an informal event to watch a televised physics press release, and plans to conduct more events like this in the future.

## **Goal 8: Create a culture of accountability.**

### ***Problems being addressed.***

Without accountability, inclusion, equity, and diversity initiatives run the risk of being mentioned but not implemented or evaluated. By creating a culture of accountability, COSAM can ensure these initiatives are implemented and also be able to evaluate their efficacy.

### ***Short-Term Objectives (1 year or less).***

**The first short-term objective to accomplish for Goal 8 is to establish a mechanism to report on the progress of the IED strategic plan.** The COSAM Transparency Initiative was established to meet this objective, and their meeting minutes are available on the COSAM OIED webpage, and this current document is also working towards that objective.

**The second short-term objective for Goal 8 is to maintain departmental IED taskforces composed of faculty, staff, and students that serve as liaisons to OIED and are responsible for ensuring their goals and objectives are accomplished.** In this regard, each COSAM department has an IED committee composed of faculty, staff, and students, with inclusion of COSAM Student Services and Outreach. The committee chairs from each

departmental committee comprise the COSAM Accountability Committee along with individuals from COSAM OIED. Relatedly, the Department of Biological Sciences has posted their core IED values on the department website, the Department of Mathematics and statistics is drafting an inclusion statement to ratify at their Fall retreat to include on their department website, and the Department of Physics IED committee has created a committee charge and is in the process of incorporating this information into their website.

## **Future Objectives**

Beyond the work accomplished so far and the continued work required to ensure these initiatives continue to be implemented with fidelity, COSAM has established additional avenues through which it will be able to support inclusion, equity and diversity within the college. In particular, COSAM has planned an additional objective related to Goal 1, which is using an evidence-based, equity-minded lens to create policies and procedures that dismantle structural inequities that adversely impact marginalized communities. This future objective to accomplish for Goal 1 is to increase transparency in the promotion and tenure process by establishing clear procedures and ensuring all candidates are well-informed about the process and receive equitable preparation and mentorship. In this regard, a tenure and promotion guide is being developed to be distributed to each department. In addition, to primarily support Goal 2, retaining and recruiting a diverse undergraduate population, but also broadly support Goals 1, 3, and 4, the Department of Geosciences is in the process of developing inclusive safety policies for student field work, and is also creating an inclusion, equity, and diversity campus resource map.

The future objectives identified in this section solely consist of initiatives which were identified in previous COSAM Accountability Committee meetings but have not yet been implemented. In addition to these future objectives, representatives from across COSAM will be continuously working to identify COSAM's strengths, areas of opportunity, and room for growth regarding inclusion, equity and diversity, which will inform the creation of more future objectives.

## **Conclusion**

As evidenced throughout this document, COSAM is committed to the work required to strengthen the inclusion, equity, and diversity efforts of our college. Based upon the collaborative work of individuals and groups throughout COSAM, our college is making meaningful strides toward our goals for inclusion, equity and diversity. However, this work cannot stop here, nor can this work be as effective as it could be if continued effort and innovation is not made a priority. As such, this document is a living one, and will be frequently updated with new initiatives, goal and objective completion progress, and any other important information as it relates to inclusion, equity, and diversity work within COSAM.



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