**Unit Strategic Plan 2021-2023**

**Mathematics, Engineering, and Physical Science - Shelby Campus**

**Mission Statement:**

The Department of Mathematics, Engineering, and Physical Sciences offers a broad range of courses that service the career programs of the college and that will transfer to baccalaureate degree granting institutions. The department also offers developmental mathematics courses to prepare students for college-level mathematics.

**Department Long Range Goals:**

1. Provide quality instruction through continued professional development
2. Increase learning and provide a world-class teaching and learning environment for faculty and students by incorporating state-of-the-art technology and modern classroom/study space design
3. Provide a university-paralleled lab experience for chemistry and science students by maintaining appropriate amounts of chemicals, glassware, equipment, and safety equipment to execute labs safely and effectively

**Department Level Student Learning Outcomes:**

1. Provide freshman and sophomore-level course work that meets or exceeds the standards of public institutions of higher learning.
2. Offer mathematics programs that accommodate various skill levels.
3. Develop and provide courses relevant to the career and professional degree programs of the college.
4. Prepare students with strong content knowledge in chemistry and physics with emphasis on critical thinking and problem-solving skill, which will allow them to meet career goals.
5. Offer transferable courses in astronomy and physical science that will meet general education requirements in science.
6. Ensure supplementary student support through audiovisual materials and tutorial services.
7. Provide academic advising to students with engineering majors and general studies

**Summary of Access, Productivity and Effectiveness (Including, but not limited to, program load, success rate, retention rate, completion rate, employer surveys, student surveys):**

The Math, Engineering, and Physical Sciences Department on the Shelby/Hoover Campus offers the following courses: Math, Chemistry, Astronomy, and Physical Science. These courses are a core element of the General Studies Program at Jefferson State Community College. These courses meet Areas III and V of the Alabama General Studies Committee/STARS Guide. While the department is proud of its graduates, most students enrolled in department disciplines transfer to four-year institutions to complete a bachelor’s degree. The department is sensitive to the academic needs of its students and strives to help them achieve their goals. The department serves a diverse student population with traditional classes, online classes, and high school students as part of the Dual Enrollment Program at Jefferson State.

**Internal Conditions:**

1. **Technology**

All instructors have access to technology in the classroom and in their offices. Most of the full-time faculty upgraded their computers in the Summer of 2018. Each classroom is equipped with an operational computer, an LCD projector, a manual projection screen, and an ELMO document camera. The part-time instructor office space is equipped with seven cubicles; five of which have operational desktop computers for the part-time instructors to use.

1. **Budget**

The budget for classroom and office supplies for the department will increase due to inflation.

1. **Staffing**

The Math, Engineering, and Physical Sciences Department employs 7 full-time instructors that cover Math, Chemistry, and Astronomy courses. The five Math instructors and the Chemistry instructor are based on the Shelby campus while the Astronomy instructor is based on the Jefferson Campus. On average, the department employs 6 adjunct instructors during the Fall and Spring semesters and 3 during the Summer. Both Chemistry and Math maintain a faculty ratio in which full-time instructors are assigned to more than half of the courses within the department. However, Physical Science historically offers one to two more sections to adjunct instructors compared to full-time.

1. **Resources**

Several resources are available to faculty members for professional development. These resources include professional organizations, publisher-supported seminars/webinars, Alabama Community College System sponsored events, and Jefferson State library supported resources. Funding to cover registration for the Alabama Community College Association annual conference has been covered by the College and the Department respectfully requests that this funding continue.

1. **Enrollment**

During the 20-21 year, the Math, Engineering, and Physical Sciences department mostly served its student in an online capacity due to the pandemic. Throughout the 2020-2021 year, the Shelby MEPS department served a total of 2,804 students in fifteen different courses from Basic Algebra to Statistics to Differential Equations. During the Fall 2020 semester, we served 1,159 students. During the Spring 2021 semester we served 996 students, and during the Summer 2021 semester we served 649 students. These numbers include students in full-time instructor’s classes and students in part-time instructor’s classes.

1. **Facilities**

Computer labs, and office space are all currently enough to meet the department’s needs. Classroom space is needed to continue offering additional courses in math. Most of the Math, Chemistry, and Physical Science courses are taught in the Math Science Building. However, some classes are taught in the Judy Merritt Building, and General Studies Building when necessary.

1. **Equipment**

Ensuring that faculty, classrooms, and labs all have up-to-date equipment and technology is a continual need. All classrooms are equipped with a desktop computer, a projector, an ELMO, and a screen. All major faculty and classroom equipment was replaced during the 2018-19 budgetary year. This equipment will need to be maintained to ensure all software is upgraded on a regular basis. ELMO machines were purchased during the 2019-2020 school year by the IT department. Currently, MSB 127 is the only room with a new ELMO installed.

**External Conditions (such as state funding, accrediting agencies, advisory committees, postsecondary policy changes):**

All courses within the department are regulated by the Alabama Community College System central office. A statewide syllabus and competencies are established for every course. The competencies are reviewed and updated as changes occur.

**2020-2021 Accomplishments:**

* Yu-Ing Hargett, Brandon Darby, Lisa Nagy, and Jamie Holley all completed the OLC workshops assigned by the college designed to help us to create better online learning experiences for students during the pandemic.
* Lisa Nagy – Attended Online Workshops\Webinars
  + On-demand strategies for reclaiming the joy of teaching
  + **Optimizing Life Online: How to Make Your Online Instruction Active & Dynamic**
  + **Student Success: 3 Ways to Prevent Cheating in Your Online Course**
  + **Navigating What’s Next:** Helping Students Thrive in Your New Course Format
  + Virtual Meeting Platforms
  + Women in Chem Share Stories of Resilience During COVID-19
  + COVID-19 Vaccines Update
  + Help Underrepresented Students Stay in Chemistry and STEM
* Yu-Ing Hargett
  + Completed Quality Matters Workshop
  + Attended Cengage Master Class – WebAssign Gradebook Deep Dive
  + Attended virtual workshop with MTH 110 textbook author, Dave Sobecki
  + Attended online workshop – Respondus Monitor: Prevent Cheating during Online Tests
* Brandon Darby
  + Attended AlaMATYC Virtual Conference
  + Participated in and completed the Instructional Leadership Academy
* Leah Compton was hired to replace Peggy Thrasher who retired
* Konstantinos Theodorou retired, and a search is currently underway to hire his replacement
* Chalkboards were removed from MSB 124, 125, 126, and 127 and were replaced with white boards.
* Take-home Chemistry lab kits were purchased and assembled so student could perform Chemistry experiments at home. These kits allowed Lisa Nagy to develop the first-ever fully online Chemistry classes during the pandemic.
* Additional Chemistry chemicals, glassware, thermometers, Vernier stations, stirring stations, colorimeters, etc. were purchased.

**Unit Goals for 2021-2022**

**Goal 1: Provide quality instruction through continued professional development**

**Objectives:**

1. Financially assist and encourage faculty to present at professional development activities and conferences and/or serve as officers for discipline specific professional organizations.
2. Encourage faculty to remain current on the newest trends, pedagogies, and philosophies in their fields by attending local, state-wide, and national conferences and by subscribing to discipline specific scholarly journals.

**Method of Assessment:**

1. Encourage faculty to present and track the number of faculty submitting proposals for presentation. Survey attendees at the events to measure and assess effectiveness.
2. Review each faculty’s Individual Action Plan for professional development opportunities. Record the number of requests submitted and monitor the number of requests submitted each year. Ask faculty who have attended conferences to share information with other faculty and\or present at in-house professional development offerings.

**Funding Requests:**

1. $1,500.00 – Support conference/online webinar presentation for faculty and support travel for meetings for officers of organizations. Requests will be on a first come, first serve basis until the budget is exhausted.
2. $3,600.00 – Professional development (IAP) funds for six faculty members. This money may be used for conference registration expenses, travel expenses, journal subscriptions, etc.

**Goal 2: Increase learning and provide a world-class teaching and learning environment for faculty and students by incorporating state-of-the-art technology and modern classroom/study space design**

**Objectives:**

1. Create a more modern and aesthetically pleasing learning environment for students and faculty by updating classroom furniture, i.e., replacing student desks, lecterns, and instructor’s desk area. This request is to replace the desks, chairs, instructor tables, media tower, lectern, and lectern top for MSB 124. The existing instructor furniture in this room is mismatched and showing extreme wear and tear. The podium is barely holding together. The new media tower will lock, which will keep the instructional technology more secure. The new student desks and the instructor tables have a smaller footprint than the existing ones which will make the classroom more spacious and allow for increased social distancing. The student chairs are ergonomically contoured which will increase student comfort. Another added benefit is that a recent article in the *Journal of Learning Spaces* stated the outcomes of a study that compared classrooms with mobile tables rather than mobile desks. The mobile table classroom created an atmosphere of greater student-to-student engagement and greater student-to-instructor engagement over the mobile desk classroom.
2. Create a more modern and aesthetically pleasing learning and social environment for students by updating the lobby furniture. The current lobby furniture consists of dated folding tables and mismatched chairs, all of which are showing extreme wear and tear. Students use these tables every day to socialize, study, and complete assignments. The vision is to make this area more of a student social area by providing benches, tables, chairs, and pub chairs that double as lounge chairs and desks. We believe updating this area will contribute to greater student-to-student connection and will enhance the learning environment and social atmosphere in our building.
3. Purchase seven office chairs for faculty. Our faculty spend an extraordinary amount of time sitting at their desks for online office hours, helping students, prepping courses, etc. The current office chairs are not ergonomically designed and cause back and neck pain if too much time is spent sitting. An article in the *Journal of Safety Science and Technology* stated that ergonomic interventions not only increase the health of employees in the workplace, but also increases the quality of the product or service being offered by the institution.

**Method of Assessment:**

1. Monitor the purchase, delivery, and installation of the furniture and equipment. Obtain feedback from faculty and students.
2. Monitor the purchase, delivery, and installation of the furniture. Obtain feedback from students.
3. Monitor the purchase, delivery, and installation of the furniture. Obtain feedback from faculty.

**Funding Requests:**

1. $9,700.00 (Click [HERE](https://jeffersonstate-my.sharepoint.com/personal/jaholley_jeffersonstate_edu/Documents/Division%20Chair/Strategic%20Plans%20&%20Budgets/21-23/Classroom%20Quote.pdf) to review the estimate.)
2. $12,100.00 (50% paid by Liberal Arts and 50% paid by MEPS. Click [HERE](https://jeffersonstate-my.sharepoint.com/personal/jaholley_jeffersonstate_edu/Documents/Division%20Chair/Strategic%20Plans%20&%20Budgets/21-23/Lobby%20Quote.pdf) to review the estimate.)
3. $3,800.00

**Goal 3: Provide a university-paralleled lab experience for chemistry and science students by maintaining appropriate amounts of chemicals, glassware, equipment, and safety equipment to execute labs safely and effectively**

**Objectives:**

1. Ensure that Chemistry students have a world-class experience by providing adequate chemicals, materials, and supplies necessary to carry out essential labs for all Chemistry classes offered on the Shelby Campus and online.
2. Purchase a portable ice maker that will provide ice necessary for Chemistry experiments. The Chemistry instructor currently leaves campus to purchase ice for experiments at a near-by supermarket.

**Method of Assessment:**

1. Communicate regularly with the Chemistry instructor and obtain feedback concerning current inventory of chemicals, supplies, and materials. Monitor the purchase and delivery of needed materials.
2. Monitor the purchase and delivery of the ice maker. Obtain feedback from Chemistry faculty to ensure that current needs have been met.

**Funding Requests:**

1. $4,000.00 – To replace glassware, disposable materials, equipment, and essential chemicals
2. $400.00 – To purchase a portable ice maker

**Total Funding Requests for 2021 – 2022: $29,050.00**

**Unit Goals for 2022-2023**

**Goal 1: Provide quality instruction through continued professional development**

**Objectives:**

1. Financially assist and encourage faculty to present at professional development activities and conferences and/or serve as officers for discipline specific organizations.
2. Encourage faculty to remain current on the newest trends, pedagogies, and philosophies in their fields by attending local, state-wide, and national conferences and by subscribing to discipline specific scholarly journals.

**Method of Assessment:**

1. Encourage faculty to present and track the number of faculty submitting proposals for presentation. Survey attendees at the events to measure and assess effectiveness.
2. Review each faculty’s Individual Action Plan for professional development opportunities. Record the number of requests submitted and monitor the number of requests submitted each year. Ask faculty who have attended conferences to share information with other faculty and\or present at in-house professional development offerings.

**Funding Requests:**

1. $1,500.00 – Support conference/online webinar presentation for faculty and support travel for meetings for officers of organizations. Requests will be on a first come, first serve basis until the budget is exhausted.
2. $3,600.00 – Professional development (IAP) funds for six faculty members. This money may be used for conference registration expenses, travel expenses, journal subscriptions, etc.

**Goal 2: Increase learning and provide a world-class teaching and learning environment for faculty and students by incorporating state-of-the-art technology and modern classroom/study space design**

**Objectives:**

1. Create a more modern and aesthetically pleasing learning environment for students and faculty by updating classroom furniture, i.e. replacing student desks, lecterns, and the instructor’s desk area. This request is to replace the desks, chairs, instructor tables, media tower, lectern, and lectern top for MSB 125. The existing instructor furniture in this room is mismatched and showing extreme wear and tear. The podium is barely holding together. The new media tower will lock, which will keep the instructional technology more secure. The new student desks and the instructor tables have a smaller footprint than the existing ones which will make the classroom more spacious and allow for increased social distancing. The student chairs are ergonomically contoured which will increase student comfort. Another added benefit is that a recent article in the *Journal of Learning Spaces* stated the outcomes of a study that compared classrooms with mobile tables rather than mobile desks. The mobile table classroom created an atmosphere of greater student-to-student engagement and greater student-to-instructor engagement over the mobile desk classroom.
2. Create a more modern and aesthetically pleasing learning and social environment for students by updating the student breakroom furniture. The current breakroom furniture includes a set of three wooden tables with four wooden chairs at each of them. We would like to update this area by providing students with a place to study and\or socialize. Two high-top tables with chairs along with a lower table with chairs for ADA accessibility will fill the middle of the room while 4 study carrell desks will line one wall. These furnishings will provide a place for students to connect, study, and collaborate while in the Math-Science Building which will enhance their college and learning experience.

**Method of Assessment:**

1. Monitor the purchase, delivery, and installation of the furniture and equipment. Obtain feedback from faculty and students.
2. Monitor the purchase, delivery, and installation of the furniture. Obtain feedback from students.

**Funding Requests:**

1. $9,700.00 (Click [HERE](https://jeffersonstate-my.sharepoint.com/personal/jaholley_jeffersonstate_edu/Documents/Division%20Chair/Strategic%20Plans%20&%20Budgets/21-23/Classroom%20Quote.pdf) to review the estimate)
2. $5,500.00 (50% paid by Liberal Arts and 50% paid by MEPS. Click [HERE](https://jeffersonstate-my.sharepoint.com/personal/jaholley_jeffersonstate_edu/Documents/Division%20Chair/Strategic%20Plans%20&%20Budgets/21-23/Break%20Room%20Quote.pdf) to review the estimate.)

**Goal 3: Provide a university-paralleled lab experience for chemistry and science students by maintaining appropriate amounts of chemicals, glassware, equipment, and safety equipment to execute labs safely and effectively**

**Objectives:**

1. Ensure that Chemistry students have a world-class experience by providing adequate chemicals, materials, and supplies necessary to carry out essential labs for all Chemistry classes offered on the Shelby Campus and online.

**Method of Assessment:**

1. Communicate regularly with the Chemistry instructor and obtain feedback concerning current inventory of chemicals, supplies, and materials. Monitor the purchase and delivery of needed materials.

**Funding Requests:**

1. $4,000.00 – To replace glassware, disposable materials, equipment, and essential chemicals

**Total Funding Requests for 2022 – 2023: $21,550.00**

**Total Funding Requests for 2021 – 2023: $50,600.00**