**Unit Strategic Plan 2019-2021**

# Name of Program/Department: Mathematics, Engineering, and Physical Science—Shelby Campus Mission Statement (for the program or department):

The Department of Mathematics/Engineering/Physical Science offers a broad range of courses that service the career programs of the college and that will transfer to baccalaureate degree granting institutions.

**Department Long Range Goals:**

1. Prepare students to continue their education at four-year institutions or to enter the

Workforce.

2. Provide students with a discipline approach to the theories and methodologies that will assist them in understanding their society.

3. Provide for its students an informal and participatory environment which encourages them to adopt a lifestyle of intellectual growth and self-awareness.

4. Cultivate qualities of character and leadership in students by developing their analytical skills as well as creating sensitivity to values essential for people living in an ever-changing world.

5. Maintain an informed and professional faculty.

# Department Level Student Learning Outcomes:

* provide freshman and sophomore-level course work that meets or exceeds the standards of public institutions of higher learning.
* Offer mathematics programs that accommodate various skill levels.
* develop and provide courses relevant to the career and professional degree programs of the college.
* 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.
* offer transferable courses in astronomy and physical science that will meet general education requirements in science.
* ensure supplementary student support through audiovisual materials and tutorial services.
* 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 Science Department, Shelby Campus department offers the following courses: math, chemistry, and physical science. These courses are a core element of the general studies program at Jefferson State Community College. These courses within these major disciplines 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 bachelor degrees. The department is sensitive to the academic needs of its students and strives hard 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 dual enrollment.

**Internal Conditions:**

* 1. **Technology**

All have access to technology in the classroom and in their offices. Since the summer of 2018, most of the full-time faculty have upgraded their computers.

# Budget

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

# Staffing

The Math, Engineering, and Physical Science Department employs 7 full-time instructors that cover both math, chemistry, and astronomy courses. Five of the Seven full-time instructors are housed on the Shelby campus. The department also shares and office manager with the Liberal Arts Department. On average, the department employs 20 adjunct instructors during the fall and spring semesters and ten during the summer. Both chemistry and math maintain a faculty ratio in which full-time instructors are assigned to more than half (66%) of the courses sections within the department However, physical science historical offers one to two more sections to adjunct instructors compared to full-time.

# 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.

# Enrollment

Enrollment from Fall ’17-18 through Summer ’17-18 was 11.893 students. Enrollment from Fall ’18-19 through Summer ’18-19 was 12.012 students. The Shelby campus enrollment for Fall ’17-18 through Summer ’17-18 was 6,039. The Shelby campus enrollment for Fall ’18-19 through Summer ’18-19 was 5,813.

# Facilities

Computer labs, and office space are all currently sufficient to meet the department’s needs. Classroom space is needed to continue offering additional courses in math. The majority of the math, chemistry, and physical science courses are taught in the Math Science Building. However, some classes are taught in the Health Science Building, and General Studies Building when necessary.

# Equipment

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. Portable Elmo machines were purchased during the 2018-2019school year. However, due to age of older Elmo systems permanently in the classrooms, those will need to be replaced during the 2019-2021 academic year.

# 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.

**2018-2019 Accomplishments:**

* Yu-ing Hargett- attended the Open Source Conference in Montgomery, Alabama.
* Corey Kline – Attended Strategies for Adaptive Learning training session sponsored by Pearson Publishing.
* Yu-ing Hargett, Magaret Thrasher and Konstatinos Theodorou - Attended the annual Alabama Community College Association conference.
* Corey Kline was accepted into the Instructional Leadership Academy.
* Lisa Nagy - Attended the American Chemical Society annual conference meeting in San Diego, CA.
* Jeff Darby was hired full time to replace Stella Langley who resigned.
* Corey Kline resigned as a full-time math instructor and was replaced by Jamie Holley

**Unit Goals for 2019-2021**

**Goal 1: Hire additional support staff to assist in transcription of videos to ensure online course materials are ADA compliant.**

**Objective:**

Instructors who teach online and hybrid courses record hundreds of hours of lecture to provide students with beneficial learning resource. Traditionally, these courses utilize Tegrity© or other video resources provided by book publishers. However, the videos do not have closed caption capabilities for the hearing impaired. To continue to utilize videos in non-traditional courses, it is necessary to ensure previously recorded and future materials are ADA compliant. The task of transcribing videos is laborious and expensive when outsourced. Additionally, faculty who have numerous videos need assistance to do the work and reevaluate the transcription. Therefore, the department is requesting a L-19 who can assist with this task.

**Method of Assessment**:

Faculty will work with the assistant to evaluate the accurateness of the trascription.

**Additional Funds Requested**:

Salary to support an L-19

**Goal 2: Dispose of chemical waste from chemistry laboratories.**

**Objective:**

Remove chemical waste to prevent buildup of toxic material and ensure that items are disposed of properly.

**Methods of Assessment**

The waste disposal pick up will be initiated and monitored by both the lead chemistry instructor, and lab coordinator, Lisa Nagy and Preston Wallace, respectively.

**Additional Funding Requests**

Waste Disposal Pick up for all campuses

Tradebe (waste disposal company) – estimated cost $2000.00

**Goal 3:** Increase the number of department math tutors.

**Objective:** Increase opportunities for students enrolled in any math course to receive free tutoring by a qualified individual employed by the department.

**Method of Assessment:**

Tutoring login sheets will provide information about the number of students seeking help. A satisfaction evaluation can be created and given to students to help gauge their experiences with the tutor.

**Additional Funds Requested:**

The Department is requesting minimally one additional tutor to help meet the needs of students that take evening, classes.

* $1500/6 hours of tutoring

**Goal 4: Provide a laboratory classroom environment that has the appropriate number of** materials to support an effective hands-on experience.

**Objective:**

* Increase the number of Vernier stations in chemistry laboratory. A request of five (5) Vernier Stations will be requested at a cost of $129.00 per unit. Total cost: $645.00
* $3000.00 for laboratory supplies
* $500.00 for lab refrigerator replacement

**Method of Assessment:**

Instructors will assess student learning through laboratory exercise and test.

**Additional Funds Requested:**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Item** | **Catalog #** | **Fisher Catalog #** | **Description** | **Qty** | **List Price** | **Extended** | **Used in CHM** |
| **1** | **LABQ2** | **S15974ND** | **LabQuest 2 Data Collection Interface** | **2** | **$329.00** | **$658.00** | **111 112 221 222** |
| **2** | **COL-BTA** | **S16008ND** | **4-Wavelength Colorimeter** | **6** | **$115.00** | **$690.00** | **111 112 222** |
| **3** | **ORP-BTA** | **S16044ND** | **Oxidation Reduction Probe** | **2** | **$81.00** | **$162.00** | **112** |
| **4** | **PH-BTA** | **S16238ND** | **pH Sensor** | **2** | **$79.00** | **$158.00** | **111 112** |
| **5** | **VDC-BTD** | **S16274ND** | **Drop Counter** | **2** | **$99.00** | **$198.00** | **111 112** |
| **6** | **VP-BTA** | **S16072ND** | **Voltage Probe** | **2** | **$12.00** | **$24.00** | **112** |
| **7** | **GPS-BTA** | **S16052ND** | **Gas Pressure Sensor** | **2** | **$83.00** | **$166.00** | **111 112** |
| **8** | **TMP-BTA** | **S16268ND** | **Stainless Steel Temperature Probe** | **6** | **$29.00** | **$174.00** | **111 112 221 222** |
| **9** | **CHEM-A** | **S16119ND** | **Advanced Chemistry with Vernier Book** | **1** | **$48.00** | **$48.00** | **111 112** |
| **10** | **CWV** | **S16047ND** | **Chemistry With Vernier Book** | **1** | **$48.00** | **$48.00** | **111 112** |
| **Totals** |  |  |  |  |  | **$2,326.00** |  |

**Goal 5: Purchase Elmo projectors**

**Objectives**

Replace outdated and failing Elmo machines with new HDMI Elmo projectors

Estimated cost: 5 units @ $1500/unit = Total $7500

**Unit Goals for 2019-2021**

**Goal 1: Enhance the teaching and learning process for math students through the purchase of new technology.**

**Objective:**

1. Improve methods of formal and ad hoc classroom lecture recordings.
2. Establish a High Definition library that would serve as online tutorials for all math students.

**Method of Assessment:**

Faculty and students would provide qualitative feedback about their experiences using the technology both in and out of the classroom. Quantitative data could be obtained by conducting a pilot study that compared students who accessed and used the online tutorials versus those that did not use the online tutorials as supplemental instruction.

**Additional Funds Requested**

Math faculty have requested the purchase of Apple I-pads, Berm Kickstand Portable Projector, and associated applications.

* + Apple IPad Air 2 128GB - $699
  + Bēm Kickstand Portable Projector - $499.95
  + Presentation Recorder App - $3.99
  + UPAD App - $4.99
  + Educreations App = $99
  + Total $1,306.93 X 8 = **$10,455.44**

By providing students with an external supplemental resource they can receive additional support that will help them acquire math content knowledge.

Goal 2: Prepare students to continue their education at four-year institutions or to enter the

Workforce.

**Objectives:**

A**.** Provide professional development activities on campus through roundtable discussions, guest speaker presentations, and workshops for faculty to maintain knowledge of current trends and technology in their fields. The department plans to bring in an outside learning theories specialist to conduct a workshop focused on effective pedagogical techniques.

Funding Requests:

$17,000.00 to renovate MSB 115 (old chemistry lab) and MSB 104 (adjunct office) into usable classroom space.

- $1000.00 to purchase licenses/registration for online seminars as well as pay honorariums for workshops provided by guest lectures/professors.

- $1000.00 in association with the Shelby campus Communication department guest lecture series

- $2000.00 to support conference attendance for faculty. Requests will be on a first come, first serve basis until the budget is exhausted.

- $3500.00 to continue to provide $500 per instructor for IAP funds.

- $3500.00 for the purchase of seven (5) Elmo devices.

- $700 per unit

- Request to hire a full-time math instructor beginning Spring 2020.

-Funds Requested: TBD

- Method of Assessment: The chair will illicit input from the math faculty to determine need(s).

Submitted by: Kevin S. Townes, chair August 30, 2019