**Unit Strategic Plan**

**2019- 2021**

**Name of Program/Department: Biology Department – Jefferson Campus**

**Mission Statement (for the program or department):** The mission of the Biology Department is consistent with the mission of Jefferson State Community College. The department provides biology courses appropriate for students majoring in both science and non-science disciplines. Our teaching aims to help prepare students for their future professions both inside and outside of the scientific field and also to be a more informed member of their community, able to make responsible decisions in biological matters.

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

The Biology Department supports the Associate in Arts, Associate in Science and the Associate in Applied Science curriculums through Area III. Both our Biology for majors (Bio 103, 104) and Biology for non-majors (Bio 101, 102) can help to fulfill the 8 hours of Natural Sciences with laboratory requirement in Area III.

In Addition, several career programs have specific Biology course requirements. The table below outlines these programs and the courses within the Biology department that are required.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Biology 103** | **Biology 111** | **Biology 201** | **Biology 202** | **Biology 220** |
| Clinical Laboratory Technology | Funeral Services | Clinical Laboratory Technology | Nursing | Nursing |
| Emergency Medical Service (Paramedic) |  | Biomedical Equipment Technology | Physical Therapy Assistant |  |
| Biomedical Equipment Technology |  | Nursing | Radiological Technology |  |
| Veterinary Technology |  | Physical Therapy Assistant |  |  |
| Transfer Students |  | Radiological Technology |  |  |

**Internal Conditions:**

1. **Technology**
   1. Our department has permanent projectors with a dedicated computer in three of our classrooms (RCH 244, RCH 245, and RCH 235). In addition we still employ two functioning mobile technology carts. Each cart is equipped with a projector and computer set up. The Biology 202 laboratory has room for ten computer workstations that are essential for simulated physiological experiments. We are still looking to add projectors with dedicated computers to all 5 laboratories so that we are consistent with all the other campuses.
   2. The microbiology laboratory is newly equipped with a free-standing incubator that was purchased and installed in 2018. It is also equipped with a new autoclave that was purchased and installed in 2018.
   3. Each of the five laboratory spaces is equipped with a set of microscopes. The microscopes used for both the majors and non-majors biology laboratories as well as the microbiology laboratories are extremely outdated and in need of replacing. In spring of 2017 we received approval to purchase 12 new microscopes. We placed all 12 of these in the microbiology lab and replaced some of the monocular microscopes in the general biology laboratories with older binocular microscopes from the microbiology laboratory.
   4. All full-time faculty members have computers in their offices. Full- time faculty computers are being upgraded as needed.
   5. All faculty members are encouraged to use the blackboard learning system to aid in classroom instruction by posting syllabi, grade books, and classroom communications. The hybrid offerings in our department utilize both blackboard and Tegrity to deliver the lecture portion of the course. We have also added a section of the internet BIO 101, non-majors biology which utilizes blackboard, Tegrity and Late-nite labs.
2. **Budget**
   1. The budget for the Biology department has been sufficient in the past in order to maintain and pay for small repairs on our equipment.
   2. It is anticipated that the budget will need to be increased in the near future to cover repairs of major pieces of equipment, provide upkeep and maintenance to existing equipment (microscope cleaning, autoclave maintenance, etc), and replenish consumables.
3. **Staffing**
   1. The current staff is sufficient to maintain a consistent level of instruction within the department.
4. **Resources**
   1. Faculty members may choose to belong to individual scientific communities within their discipline. There is a set amount of money allocated for professional development which they can use to attend meetings, conferences, and workshops.
5. **Enrollment**

Enrollment in the Biology department continues to hold steady. The Jefferson campus hold the second largest number of registrations among the campuses.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total Registrations | Credit Hour Production | Term |
| BIO | 5126 (9.7%)\* | 20504 | 2016-2017 |
| BIO | 5061 (9.7%)\* | 20244 | 2017-2018 |
| BIO | 5019 (9.7%)\* | 20076 | 2018-2019 |

\* Biology registrations account for of the total registrations at the college

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total Registrations | Credit Hour Production | Term |
| Jefferson | 610 | 2440 | FA2018 |
| Shelby | 1028 | 4112 | FA2018 |
| Pell City | 273 | 1092 | FA2018 |
| Clanton | 207 | 828 | FA2018 |

|  |  |  |  |
| --- | --- | --- | --- |
|  | Total Registrations | Credit Hour Production | Term |
| Jefferson | 506 | 2024 | SP2019 |
| Shelby | 1002 | 4008 | SP2019 |
| Pell City | 239 | 956 | SP2019 |
| Clanton | 219 | 876 | SP2019 |

1. **Facilities**
   1. Biology has three dedicated classroom spaces for lecture and several others that are shared with other transfer and general studies courses. There are five laboratories which are dedicated to specific Biology courses.
   2. Each full-time faculty member maintains an office space and the department maintains a central office, which houses both the chairperson and the office manager for Mathematics and Sciences. Facilities and spaces are adequate with no anticipated need for additional facilities.
2. **Equipment**
   1. Other equipment that has not been mentioned under the Technology section of this report include, two laser jet printers, a copy machine, and two television/VCR carts.

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

All of our Biology courses are regulated by the Alabama Department of Postsecondary Education. Competencies for each course are reviewed and adopted. Instructors are encouraged to use the competency to outline their courses and their own individual syllabi.

**2017-2018 Accomplishments:**

* A new incubator was purchased and installed in the Microbiology Laboratory
* A new autoclave was purchased and installed in the Microbiology Laboratory
* Faculty members who were due for new computers received their computers
* Anatomy and Physiology models were purchased for lab
* A partnership with UAB ROSE (research on science education) initiative was implemented. Currently faculty members participate in monthly seminars

**2018-2019 Accomplishments:**

* New desks and chairs were purchased and installed in RCH 244 and RCH 245
* Vernier physiology data probes were purchased, and faculty were trained on how to utilize them
* Implemented a new manual for BIO 220. The new manual aligns with the implementation of a course based undergraduate research experience in Microbiology

**Unit Goals (plans for the unit for the next two years):**

**Unit Goals for 2019-2020**

**Goal 1: Install projection Technology in the five Biology laboratories**

1. Outcomes
   1. This goal will help to meet all of our departmental and student learning outcomes by enhancing the educational experience in lab. Also adding projectors and dedicated computers to our laboratories will allow us to be consistent with the laboratories at all the other Jefferson State Campuses.
2. Objectives
   1. Install a computer and projector in Room 230
   2. Install a computer and projector in Room 232
   3. Install a computer and projector in Room 240
   4. Install a computer and projector in Room 241
   5. Install a computer and projector in Room 243
3. Method of assessment
   1. Obtain feedback from full-time and part-time faculty on the ease of use of new equipment
   2. Monitor the number of faculty participating in more technology use in the classroom
4. Additional funding request
   1. Projectors for each of the laboratories @ $2252.28 x 5 labs = $11261.40
   2. Computers for each of the laboratories @ $1005.74 x 5 labs = $5028.70

**Goal 2: Increase the number of functional microscopes**

1. Outcome
   1. Students will understand the fundamental principles of biology at the elemental, cellular, molecular, and organism levels
2. Objective
   1. Increase the servicing of microscopes to yearly
   2. Replace the decades old monocular microscopes found in the general biology laboratories
3. Method of Assessment
   1. Microscopes will be fully incorporated into the laboratory experience and assessments
   2. Informal feedback and conversation between students and instructors
   3. End of semester course evaluation forms
4. Additional Funding requests
   1. Annual microscope servicing for all current microscopes $3,360.12 per year
   2. Replace outdated microscopes in BIO 220(12), BIO 101 (24) and BIO 103 (32) @ 1,676.7 each X 68 = $114015.60

**Goal 3: Develop Course Based Undergraduate Research Experiences (CUREs)**

1. Outcome
   1. This goal will help to meet all of our departmental and student learning outcomes by offering inquiry-based lab experiences
   2. Students will understand the principles and processes that are fundamental to life
   3. Students will understand the fundamental principles of biology at the elemental, cellular, molecular, and organism levels
   4. Students will receive the appropriate Biological knowledge to support a career within the scientific, medical, or health and fitness community
2. Objective
   1. Develop and implement CUREs that align with the laboratory curriculum
   2. Increase the number of students exposed to scientific research
   3. Improve students’ outcomes in Biology courses
   4. Improve student attitudes regarding Biology
3. Method of Assessment
   1. Survey students regarding their attitudes towards Biology at the beginning and ending of the semester
   2. Assess students understanding of biological concepts at the beginning and ending of the CURE
4. Additional Funding requests
   1. $1,000 per CURE lab section for consumable materials
   2. 3 sets of Fischer micropipettes (3 each of 1-10ul pipette, 10-100ul, and 100-1000ul). Each pipette is $307.96 X 9 = $2771.64

**Goal 4: Explore the adoption of Open Educational Resources (OER) for all course offerings**

1. Outcome
   1. This goal will help to meet all of our departmental and student learning outcomes by ensuring students have course resources on day 1
   2. Students will receive the appropriate Biological knowledge to support a career within the scientific, medical, or health and fitness community
2. Objective
   1. Review the Open Education Resources available for our course offerings
   2. Implement OER for our course offerings where possible
   3. Develop OER for our course offerings as needed
3. Method of Assessment
   1. Faculty will review the various OER available
   2. Faculty will be surveyed regarding OER usage
   3. After adoption of an OER feedback will be solicited from faculty and students
4. Additional Funding requests
   1. No funding required

**Goal 5: Maintain adequate computer technology**

1. Outcome
   1. This goal will help us to meet all of our departmental and student learning outcomes by ensuring we have the computer technology to maintain a high quality educational experience
2. Objectives
   1. Continue to update instructor and classroom computers every three years
   2. Update BIO 202 laboratory computers
3. Method of assessment
   1. Informal feedback and conversation with faculty
4. Additional funding requests
   1. Lab top and docking stations $1459.94 each x 3 instructors teaching hybrids = $4379.82
   2. Upgrade computers in classrooms and laboratories as needed at $1005.74 each

**Goal 6: Update classrooms, laboratories, and common areas as needed**

1. Outocme
   1. This goal will help us to meet all of our departmental and student learning outcomes by ensuring our classrooms and laboratories are modern and functional
2. Objectives
   1. Ensure that our classroom and laboratories maintain maximal functionality
3. Method of assessment
   1. Informal feedback and conversation with faculty
4. Additional funding requests
   1. Virco Desks and Chairs for RCH 235 32 chairs at $55 each = $1760 and 32 desks at $90 each = $2880
   2. 48” x 96” white board to replace unusable chalkboard in Rm 245 at $359.99 each
   3. Laboratory stools as needed at $255 each

**Unit Goals for 2020-2021**

**Goal 7: Explore the addition of research-based courses to the Jefferson State Biology Curriculum (Bio 105 - Introduction to Biotechnology and BIO 203 – techniques in Molecular Biology)**

1. Outcome
   1. This goal will help to meet all of our departmental and student learning outcomes while providing students an opportunity to explore an interest in current STEM research technique.
   2. Students will receive the appropriate Biological knowledge to support a career within the scientific, medical, or health and fitness community
2. Objective
   1. Assess interest amongst are students for research based courses
   2. Create syllabi for the courses
3. Method of Assessment
   1. Faculty will assess student interest in STEM research via survey
   2. Biology faculty will meet to review course competencies, student learning objective and course content.
4. Additional Funding requests
   1. No funding required