Proposal Title: Computer equipment/software for 316 lab and online biology instructors

Originator and Position: Nick Reeves, Associate Professor and Chair, Biological Sciences

Area Dean: Michael Beckham, Interim Dean of Mathematics and Science

Campus: Menifee Valley Campus

Area Vice President: Brandon Moore, Interim Vice President of Instruction

Budget Account Code: Not sure – General Fund?

*Total Amount Requested: $112,316 (see breakdown below)

*Please complete all applicable portions of “Section VI - Projected Expense File” now to determine the “Total Amount Requested” above.

Please check:

| One-Time Funding: ☒ | On-Going Funding: ☐ | Safety: ☐ |

1.) For what are you asking? 2.) Why is the request timely and important? 3.) Where was the need identified? Please answer these three questions in 250 words or less. See instructions for further explanation.

We are asking for computer equipment and software to support enhanced and safer student learning in the 316 biology lab on the Menifee Valley Campus. Specifically we are requesting lab laptops ($86,959), Surface Pro 4 units for online Biology instructor use ($17,990), microscope camera units ($2,844), webcam units for larger specimen images ($2,545), anatomy and physiology software ($1,978). 2.) This request is timely and important as we continue to look for ways to make the microbiology lab experience safer. A paperless lab experience would mean that students do not need to take papers that could be contaminated home with them. Also, we are offering our human biology course at MVC again and we want to investigate in computer based learning activities to support student success in this course. 3.) The need was identified by faculty and staff as a way to improve student success in microbiology and a way to make the lab experience safer. Also, our new full time instructor that has taken on human biology is developing a more rich curriculum that will enhance learning for our students in the course.

Section I – Program Review and Learning Outcomes - 20 points possible

1.) Identify support from your 2014-15 Comprehensive Program Review (CPR) or 2015 – 16 Annual Program Assessment (APA) for this request (8 points). Link to Program Review
2014-15 LA MASC CPR 2011-14 IIA. Planning and Resource Requirements – Goals: page 44 - Goal 3: Continue to grow our microbiology program in a sustainable and safe way; IID. Planning and Resource Requirements – Technology: page 51 - 2. Student computing technology in the laboratory 2015-16 LA MS APA: IIA. Planning and Resource Requirements – Goals: Goal 5: Develop computer based curriculum and assessment for laboratory sections and enhance lab spaces with laptops and computer connected probeware to make the lab experience more relevant and increase student success IIB. Planning and Resource Requirements – Technology: 2. In our CPR we highlighted our transition to a computer enabled lab experience for our students. We currently have a complete set of laptops for the 315 lab and we will be submitting a RAP for a set of laptops in the 316 lab. We have discovered that a computer enhanced lab experience is safer, more relevant/realistic, and builds skills in computer technology as well as science.

2.) How will this request help improve student learning in the course and/or program (12 points)? Link to Learning Outcomes

ILOs - Scientific Awareness: The student will possess an awareness of the physical and biological principles related to science. – The computer equipment being requested above supports the investigation of biological principles in the laboratory. - Biological Sciences DLOs - 1. Explain and appreciate how scientific knowledge is obtained and verified. - The computer equipment above will enable our department to offer a more relevant and up to date laboratory experience. 2. Explore and appreciate the facts and principles concerning heredity, variation and diversity, the cell, evolution and natural selection. – The computer technology will allow access to new and improved activities to explore these fundamental concepts in biology 3. Explain and appreciate the cycling of matter and the flow of energy in living systems. – Computer activities are available for this biological. 4. Achieve basic literacy in the language of biology. - Basic literacy is gained through experiential learning. Students will be able to experience the concepts of biology using this computer equipment. - Additional Course Learning Outcomes specifically addressed by the items in this RAP proposal - BIOL-150 - General Biology I SLO 2: The student will be able to describe the energy transformations of glycolysis. - BIOL-151 - General Biology II - SLO 3: The student will relate the structures of animals to their functions. – BIOL-100 - CLO 1: The student will be able to identify major anatomical structures in the human model. - CLO 2: The student will be able to co-relate the major anatomical structure with its function in human body - BIOL-115 - Topics in Biology - SLO 2: The student will be able to identify the need for a control group and sufficient sample size in a scientific experiment.
1.) How is your request aligned to the strategic goals below? Check all (typically 2 – 6 goals total) that apply. Click here for the 2016-17 Prioritization Allocation Rubric (PAR) for points-weighting during scoring.

2014-17 Strategic Plan Goals

☒ 1. Reduce time to completion of student educational goals and increase degree, transfer and certificate completion.
☒ 2. Drive institutional decision-making using internal and external data to inform planning and prioritize resources.
☐ 3. Refine staffing plan and process
☒ 4. Improve fiscal responsibility that is sustainable for the long term
☐ 5. Identify sustainability strategies to improve efficiencies in processes district-wide
☐ 6. Expand and improve student involvement in campus life
☒ 7. Promote quality of institution through enhanced communication within the community (internal/external)
☒ 8. Enhance the overall campus life experience
☒ 9. In an effort to serve students build bridges between instructional services, student services and administrative services
☒ 10. Increase the College’s visibility, value and recognition in the service area

2.) Please describe the connections between the goals you checked and your proposal (200 words maximum):

Goal 1: Objective 1.2 Increase face-to-face and online course completion and success rates leading to increase in transfers to four-year institutions – The equipment requested above supports student learning and provides a better learning environment that will lead to improved student retention and success. Subgoals addressed - Ensure all classrooms are smart rooms and update equipment regularly. Promote student success through focused and tactical advising, innovative learning strategies, and student education plan development. Computer equipment will also drive institutional decision-making using data (Goal 2) since this technology will impact how department learning outcomes are taught and assessed. The use of computer equipment will help the college achieve a more fiscally sound position (Goal 4) because it will encourage a shift toward becoming a paperless campus through the adoption of more electronic devices. The purchase of computer equipment will also promote enhanced communication within the community (Goal 7) since students will have opportunities to learn from each other within the classroom through electronic collaborative research and writing activities. Computer equipment will also “enhance the overall campus life experience” (Goal 8) since they will meet the goal of “provid(ing) facilities that enhance student engagement” (Goal 8.3) and will increase student awareness “of services and activities using...other technologies” (Goal 8.4). Laptop computers will “build bridges between instructional services” (Goal 9) by “increasing professional development” (Goal 9.1)
opportunities and “think tank sessions” (Goal 9.3) through districtwide laptop usage training opportunities for biology faculty. This technology will increase the College’s visibility, value, and recognition (Goal 10) since this will improve the reputation of the Menifee Valley Campus in the local community as a site that is at the forefront of technology and innovative teaching practices rather than a location of outdated equipment and classroom space.

Section III – Alignment with Institutional Plans - 15 points possible

Explain how your proposal is supported by the following plans: 2009-16 Educational Master Plan (4 points), Distance Education Plan (4 points), Technology Plan (4 points) and/or Facilities Master Plan (3 points). Link to Plans

This RAP is connected to the Educational Master Plan for 2009-2016, the Distance Education Plan, the Technology Plan, and the Facilities Master Plan of our college. For example, the employment challenges of college students are addressed on page 24 of the 2009-2016 Educational Master Plan. “Community colleges will experience growth in the 18-to-20-year-old age group of students because the costs of other forms of higher education are very high, while at the same time there will be a lack of employment opportunities for people in that age group. There will also be an increase in the number of persons 20 to 50 years old who are seeking retraining or upgrading, again due to the lack of job opportunities.” With that in mind, the purchase of computer equipment will provide students with an opportunity to develop twenty-first century skills that focus on collaborative learning and problem solving, technology usage, and content creation through technology. These skills will make our students more competitive candidates for the workplace and provide them with the “retraining” and “upgrading” described in the Educational Master Plan. The use of technology such as computer equipment is also supported by the Technology Master Plan that describes the mission of the Information Technology Department as providing “an institutional computing environment that manages and maintains accurate, reliable, and efficient technology services for the success of the College community” (page 2). The administrative unit outcomes listed on the same page emphasize the need to support “a technology infrastructure that is conducive to student learning and College operations, by providing an institutional computing environment that is robust, reliable, (and) secure.” Administrative support for the purchase of computer equipment will be in keeping with the Technology Master Plan’s goal of creating a technology infrastructure that is conducive to student learning. Lastly, the Facilities Master Plan supports the purchase of usage of laptop computers since the goals of the Facilities Master Plan include creating “campuses that strongly support student learning and contribute to a high standard of student life” as well as creating “campuses and facilities that promote increased student-faculty interaction and interdisciplinary and collaborative learning.” Computer equipment will help achieve these goals by helping facilitate student learning and encouraging instructor-student interaction in the classroom through rigorous experimentation and data analysis.
## Section IV – Goals and Measurable Outcomes – 30 points possible

1.) Describe your goal(s) for this project (10 points). How will this improve student learning or enhance institutional services? For a review of goals, see pp. 18 – 20 of a presentation via this [link](#).

Goal One: Create a more equitable and active learning environment and utilize in-class technology. Goal Two: Improve student success rates through the use of computer technology and online biology materials. Goal Three: Decrease withdrawal rates through the use of computer technology and online biology materials. Goal Four: Create a more dynamic and innovative classroom experience for students to foster twenty-first century learning skills. Goal Five: Improve technology that supports easier assessment of Course Learning Outcomes. Goal Six: Provide professional development opportunities for biology faculty to enrich their teaching repertoire.

2.) What are the measurable outcomes for this RAP (10 points)? That is, how will progress toward meeting your goal(s) be identified and/or measured? Click [here](#) for learning outcome reference materials.

Measurable Outcome for Goal One: Purchase of new technology and equipment will improve the result of in-class lab activities and group projects.

Measurable Outcome for Goal Two: Analyze institutional data of the success rates of history classes after implementation of new technology and equipment.

Measurable Outcome for Goal Three: Analyze institutional data of the withdrawal rates of history classes after implementation of new technology and equipment.

Measurable Outcome for Goal Four: Assess both the learning of the content as before but also the use of the technology and equipment.

Measurable Outcome for Goal Five: Biology Department faculty will be trained on how to effectively incorporate equipment and technology into their laboratory exercises and develop more rigorous data analysis activities.

3.) Explain how your outcomes are tied to your CLOs/PLOs/AUOs/SLOs (10 points).

**ILOs** - Scientific Awareness: The student will possess an awareness of the physical and biological principles related to science. – [Goals 1, 4, 5 above](#); **Biological Sciences DLOs** - 1. Explain and appreciate how scientific knowledge is obtained and verified. – [Goals 1, 4, 5, 6 above](#) 2. Explore and appreciate the facts and principles concerning heredity, variation and diversity, the cell, evolution and natural selection. – [Goals 1, 4, 5, 6 above](#) 3. Explain and appreciate the cycling of matter and the flow of energy in living systems. – [Goals 1, 4, 5, 6 above](#) 4. Achieve basic literacy in the language of biology. – [Goals 2 and 3 above](#); **Biological Sciences CLOs**: For many of the CLOs mentioned in 2.) the students will successfully develop biology laboratory skills and [Goals 1, 3, 4, and 5 above](#) support those CLOs. For other CLOs mentioned in 2.) the students will gain an understanding of the scientific method and how it is used to develop new scientific knowledge and [Goals 1, 3, and 5 above](#) support those CLOs. Lastly, for other CLOs mentioned in
2.) the students will develop discipline specific knowledge and **Goals 1, 2, 3, 4, and 5** support these CLOs

**Section V – Implementation Plan – 10 points possible**

What are the steps that you will take or need to be taken to implement this proposal?

1.) Who is in charge of implementing the project (2 points)? Nick Reeves and Laurie Ney

2.) What are the projected start and end dates (2 points)? Spring 2016 to Fall 2016

3.) What other departments will need to assist to assist with the acquisition/implementation of the project (2 points)?

   We will need assistance from the Instructional Technology Support Department

4.) When will the outcomes be measured (2 points)? Spring 2017 and Fall 2018

5.) How will you measure the desired outcomes (2 points)? Analysis of institutional data in our Annual Program Assessment, analysis of student learning outcome data in eLumen, Biological Science Department “think tank” sessions to share best practices

**Section VI - Projected Expense Profile**

For the object codes and titles below, please indicate the monetary amounts requested.

**Object Code 4XXX**

**Supplies and Materials:** [Click here to enter text]. **Amount requested:** [Click here to enter text].

**Supplies and Materials:** [Click here to enter text]. **Amount requested:** [Click here to enter text].

**Supplies and Materials:** [Click here to enter text]. **Amount requested:** [Click here to enter text].

**Object Code 5XXX**

**Services:** [Click here to enter text]. **Amount requested:** [Click here to enter text].

**Services:** [Click here to enter text]. **Amount requested:** [Click here to enter text].

**Services:** [Click here to enter text]. **Amount requested:** [Click here to enter text].

**Object Code 6XXX**
New Equipment/Building or Site Improvements: Click here to enter text. Amount requested: Click here to enter text.
New Equipment/Building or Site Improvements: Click here to enter text. Amount requested: Click here to enter text.
New Equipment/Building or Site Improvements: Click here to enter text. Amount requested: Click here to enter text.

(S2) Subtotal from Non-Personnel Requests: Click here to enter text.

Total Proposed Budget (sum subtotals (S1) and (S2) above):  Click here to enter text.

3. Secondary Effects (if this proposal is approved)

If a Classified/Administrative Personnel Prioritization Request is being submitted in tandem with this RAP, what additional space, if any, is needed to accommodate this position:  Click here to enter text.

For equipment and technology requests, will additional space be needed to accommodate the requested equipment? If so, where is the proposed location?  Click here to enter text.

Will requested equipment require maintenance agreements or support personnel? If so, what the projected costs?  Click here to enter text.

Please list future year anticipated needs and estimated financial needs. NOTE: This section refers to any anticipated funding not addressed by this RAP but required in the future. This will not be automatically funded. A new RAP must be completed in the future.

Fiscal Year:  Click here to enter text. Anticipated need:  Click here to enter text. Estimated amount: Click here to enter text.
Fiscal Year:  Click here to enter text. Anticipated need:  Click here to enter text. Estimated amount: Click here to enter text.
Fiscal Year:  Click here to enter text. Anticipated need:  Click here to enter text. Estimated amount: Click here to enter text.