

# Comprehensive Program Review Report



## Program Review - Mathematics

### Program Summary

#### 2020-2021

**Prepared by:** Matthew Bourez

**What are the strengths of your area?:** The mission of the Mathematics Department is to provide a foundation for liberal arts education and a foundation for the study of the sciences. This is accomplished by providing students with a broad range of courses taught through a wide range of delivery options including traditional lecture, hybrid, and online courses. We have well-qualified full time instructors within the Math Department. We have several who have published textbooks or will soon publish textbooks within their discipline. We have others who have published articles in refereed mathematical or statistical journals. We have a couple of Golden Apple Award winners and others that have been recognized for their excellence in teaching within local or state organizations. In total, we have 16 full-time faculty members in the mathematics unit. Over the past year, we have a net loss of two full-time instructors and one adjunct member.

In the past, we commonly divide our course into 3 unique categories: Developmental Mathematics (Math 360, Math 200, and Math 230), Transfer Level (Math 10, Math 11, Math 21, Math 154, and Math 70) and Major (Math 65, Math 66, Math 67, Math 80, and Math 81). With developmental classes no longer being offered and support courses now being offered, we will examine our courses as just Transfer Level (with and without support) and Major.

For our Transfer Level courses with a linked support course (section of Math 10, 21 and 35) our overall success rates ranged from 43% to 59%. In light of the fact that these would be students that were traditionally placed one to three levels below transfer, the success rates are good and in line with or better than what would have been predicted based upon research from the RP group. For our Transfer Level courses that were not linked to as support course our overall success rates ranged from 57% to 90%. Math 10 and Math 21 showed significant decreases in success. This was not unexpected with changes that were made to placement for fall 2019. The lowest success among Transfer Level courses was Math 35 with 43% success for sections linked to a support course and 57% for sections that were not linked to a support course. For the major courses, our overall success rates ranged from 58% to 95%. The success rate for all math courses increased from 60.0% to 62.2%.

Anticipating lower success rates in Math 35, the math department created a new course Math 144. This course will be offered for the first time in fall 2020 and provides students with a transfer level mathematics course that will assist them in building strong foundational skills for STEM courses.

With the developmental math sequence no longer be offered (with no plans to offer it in the future), enrollment in math courses has changed. The FTES generated by math courses in 2019/2020 is 931.30, which is down 160.33 FTES from the previous year and down 355.43 from two years ago. Due to these significant decreases in FTES, the division's productivity (FTES/FTEF) fell to 16.16, falling below the target ratio of 17.5.

Our department prides itself on providing our students with a quality mathematics education by maintaining high academic standards as well as keeping up with the latest educational developments by attending state and national conferences such as AMATYC (American Mathematical Association of Two-year Colleges), CMC<sup>3</sup> (California Mathematics Council of Community Colleges), and ICTCM (International Conference on Technology in Collegiate Mathematics) among others. This past year, much of our time was spent reacting to various changes. First adapting to the changes caused by the full implementation of AB705 (both placement and course offerings). And secondly, adapting to the dramatic shift to online teaching caused by the COVID-19 pandemic. The math department has handled these changes well and will continue to adapt as needed.

The Math department is intimately involved in both the MESA and SETA programs. These programs offer valuable opportunities for our students. These opportunities serve to enrich their academic experience and help meet their educational and career objectives. Faculty members participate in a variety of ways including working with student mentors to provide Academic Excellence Workshops, presenting interesting research and mathematical ideas as keynote speakers at SETA meetings, as well as act as mentors and chaperons on field trips to 4-year colleges and universities.

Finally, we take our role in student support services very seriously. One of the most visible student support services on campus is

the Math Center. Here, students can get help in an open lab environment with instructor assistance. The idea is that students will be able to strengthen their mathematics skills and reinforce their mastery of the mathematical concepts by attending the lab on a regular basis.

**What improvements are needed?:** We still need to ensure that we are in compliance with AB705 while continuing to deliver quality education. We need to continue the conversations that were started last year centered around validating our work on AB705 and our placement of students into support courses. To ensure quality education, we will need to have the appropriate equipment and supplies for our classes.

A new math placement grid will take effect for the 2021-2022 school year. We will continue to evaluate the placement procedures to ensure that we are appropriately placing students based upon their high school GPA and coursework.

Additionally, we will be continuing to examine the curriculum (MATH 144 and support courses) to see if further modifications will be necessary.

We also need to continue to advertise the changes that are occurring with the math curriculum to the campus as a whole. With the addition of support courses, a new math course (MATH 144), and changes to math placement, it is critical to keep the campus community informed regarding these changes and the impact they may have.

**Describe any external opportunities or challenges.:** The biggest external challenges come from the State Legislature (AB705), the CSUs and the Chancellor's office. These have changed the landscape as it relates to the developmental/remedial mathematics curriculum and math placement. We have moved swiftly to become fully compliant with AB705. We developed co-requisite support courses for our entry-level transfer courses and added a college algebra course to our sequence. We have further updated our placement rules that will be effective Fall 21 and are now focused on gathering data and validating the work done.

**Overall SLO Achievement:** We are using an imbedded question approach in the majority of our courses and the student learning outcomes indicate similar or improved achievement when compared with previous assessments.

**Changes Based on SLO Achievement:** One change that we have implemented was simply in the type of assessments we are using. We are looking for more effective and efficient methods of obtaining the results of these assessments from so many sections and faculty members.

**Overall PLO Achievement:** We have mapped our individual course outcomes to our program outcomes and our program outcomes to our district objectives and institutional outcomes.

**Changes Based on PLO Achievement:** No significant changes based upon PLO Achievement.

**Outcome cycle evaluation:** We have broad, effective participation within the unit. Dialogue Days are well attended as are other division meetings where we work on learning outcomes. We are still seeking to find the best method of assessment that will allow us to find appropriate improvement strategies. However, we are satisfied with the results and process so far.

## Action: New Chairs in Kaweah 204A

Purchase 40 new computer chairs for Kaweah 204A

Leave Blank:

**Implementation Timeline:** 2020 - 2021

Leave Blank:

Leave Blank:

**Identify related course/program outcomes:**

**Person(s) Responsible (Name and Position):** Matt Bourez, Division Chair Math and Engineering, Bryon Woods, Dean of Facilities

**Rationale (With supporting data):** The current chairs in Kaweah 204A are old and mismatched. Many of the chairs are breaking or have broken parts. Students are no longer able to comfortably sit through a 50 minute lecture.

**Priority:** High

**Safety Issue:** Yes

**External Mandate:** No

**Safety/Mandate Explanation:** Broken and breaking chairs have the potential of injuring students.

### Resources Description

**Facilities - 40 Computer Chairs (Active)**

**Why is this resource required for this action?:** The chairs must be purchased in order to replace the existing chair in Kaweah 204A which are breaking or broken.

**Notes (optional):** The estimated cost was obtained from Byron Woods.

**Cost of Request (Nothing will be funded over the amount listed.):** 8000

# Program Review - Mathematics

## Link Actions to District Objectives

District Objectives: 2018-2021

**District Objective 2.3** - By 2021, increase the percentage of students who complete transfer-level English by 15 percentage points and transfer-level math by 10 percentage point with their first year.

## Action: Gather success data for Math 21 with and without support

Gather and analyze success rates for Math 21 with and without support in order to work towards validating our corequisite model for the purposes of AB705

**Leave Blank:**

**Implementation Timeline:** 2020 - 2021

**Leave Blank:**

**Leave Blank:**

**Identify related course/program outcomes:**

**Person(s) Responsible (Name and Position):** Matt Bourez, Division Chair Math and Engineering

**Rationale (With supporting data):** As we continue to work with the new course structures and placement model to remain in compliance with AB705, we need to analyze the ongoing success rates within Math 21 and Math 321. The data obtained will be used to validate the placement model that we are using.

**Priority:** High

**Safety Issue:** No

**External Mandate:** No

**Safety/Mandate Explanation:**

## Action: Room Remodels 2019-2020

Remodel rooms in Yokut (11, 12, 13) and San Joaquin (1, 2)

**Leave Blank:** Continued Action

**Implementation Timeline:** 2019 - 2020, 2020 - 2021

**Leave Blank:** 10/15/2017

**Leave Blank:**

**Identify related course/program outcomes:**

**Person(s) Responsible (Name and Position):** Division Chair of Math and Facilities Director (Byron Woods)

**Rationale (With supporting data):** The following is an excerpt from one faculty member's feelings regarding the state of this room:

The Yokut rooms are horrible, and the San Joaquin rooms are worse. The floors squeak and bounce, the roof leaks, the AC is too loud for my students to hear my lecture, and the rooms are awkwardly laid out...I mean, we are an institute of higher education. I would think that making sure we have functional classrooms would be a top priority... So I guess my question is what can we do about this? Is this something that we can submit as part of program review? Maybe this is an issue you've all talked about in the past, but if there's any pressure that we can put on the powers that be, it seems to me that we should be doing so. Incessantly.

In short, better rooms will help with student learning as our current situation is not really conducive to learning.

**Priority:** High

**Safety Issue:** No

**External Mandate:** No

**Safety/Mandate Explanation:**

### Update on Action

#### Updates

**Update Year:** 2020 - 2021

**Status:** Continue Action Next Year

09/15/2020

# Program Review - Mathematics

None of these rooms have been remodeled and they continue to deteriorate. The ability to effectively teaching continues to be hampered by poor lighting and aging infrastructure.

**Impact on District Objectives/Unit Outcomes (Not Required):**

## Resources Description

**Facilities -** Remodel rooms in Yokut (11, 12, 13) and San Joaquin (1, 2)

"An estimated construction cost for carpet, subfloor repairs, window blinds, new paint, and LED lighting upgrades in any of the Yokut or San Joaquin portable classrooms would be about \$12,000 per room.

If you are interested in replacing the HVAC unit with a new, quieter, more efficient unit, the estimated cost would be about \$8,000 per room. Depending on the room, there is a possibility of sound dampening these units, however, for budgeting purposes I would just request to replace the existing units.

All in all, a full "remodel" of a portable classroom (Yokut or San Joaquin) should run about \$20,000 per room. Please note that the above improvements do not include any technology or related equipment upgrades. Please let me know if you have any additional questions. Thanks!"

Byron Woods  
(Active)

**Why is this resource required for this action?:** The following is an excerpt from one faculty members feelings regarding the state of this room:

"The Yokut rooms are horrible, and the San Joaquin rooms are worse. The floors squeak and bounce, the roof leaks, the AC is too loud for my students to hear my lecture, and the rooms are awkwardly laid out...I mean, we are an institute of higher education. I would think that making sure we have functional classrooms would be a top priority... So I guess my question is what can we do about this? Is this something that we can submit as part of program review? Maybe this is an issue you've all talked about in the past, but if there's any pressure that we can put on the powers that be, it seems to me that we should be doing so. Incessantly. "

In short, better rooms will help with student learning as our current situation is not real conducive to learning.

**Notes (optional):** We will take anything that we can get. The cost estimate below is for all 5 rooms fully done. But we could do one room at \$12,000 per room and not replace the HVAC unit.

**Cost of Request (Nothing will be funded over the amount listed.):** 100000

## Action: Document Cameras 2019 - 2020

Replace the current document camera in Kaweah 204A and Sequoia 150 with new one

**Leave Blank:**

**Implementation Timeline:** 2019 - 2020

**Leave Blank:**

**Leave Blank:**

**Identify related course/program outcomes:**

**Person(s) Responsible (Name and Position):** Matt Bourez, Division Chair Math and Engineering

**Rationale (With supporting data):** The current document cameras are not functioning properly and are creating additional obstacles for instructors.

**Priority:** Medium

**Safety Issue:** No

**External Mandate:** No

**Safety/Mandate Explanation:**

**Update on Action**

# Program Review - Mathematics

## Updates

**Update Year:** 2020 - 2021

09/16/2020

**Status:** Action Completed

Document cameras were purchased and installed in Kaweah 203 and Sequoia 150

**Impact on District Objectives/Unit Outcomes (Not Required):**

## Resources Description

**Equipment - Instructional** - Document Cameras for rooms Kaweah 204A and Sequoia 150 (Active)

**Why is this resource required for this action?:** The instructors teaching in these rooms frequently make use of the document cameras. When the cameras are not operating properly, the quality of education is diminished. With an increased use of technology in our statistics courses, properly working equipment is essential. Additionally, Kaweah 204A has never had the typical switch that most classroom rooms possess the change from displaying the computer screen, document camera, and DVD player. This request would also include a switch for Kaweah 204A.

**Notes (optional):** The estimate was provided by Patrick Mitchell in an email on 9/9/2019

Matt,

The document cameras are \$1,085.40 each. Two of them with tax just cost me \$2,355.31 last month

Patrick Mitchell  
Media Services Technician

and 9/19/2019

Matt,

I looked up the pricing for the controls in the room, one way was \$625.00 the other \$745.00

If you were to ask for \$800, that should cover the tax, shipping and parts for either choice.

Patrick Mitchell  
Media Services Technician  
Sequoias Community College District

**Cost of Request (Nothing will be funded over the amount listed.):** 3156

## Link Actions to District Objectives

District Objectives: 2018-2021

**District Objective 2.1** - Increase the percentage of students who earn an associate degree or certificate (CTE and Non-CTE) by 5 percentage points over three years

**District Objective 2.2** - Increase the number of students who transfer to a four-year institution by 10 percent over three years

**District Objective 2.3** - By 2021, increase the percentage of students who complete transfer-level English by 15 percentage points and transfer-level math by 10 percentage point with their first year.

**District Objective 3.1** - By 2021, increase the placement rates into transfer-level English and transfer-level math for targeted groups that fall below the District Average.

**District Objective 3.2** - By 2021, increase the percentage of students in targeted groups who complete transfer-level English (by 10 percentage points) and transfer-level math (by 5 percentage points) within their first year

# Program Review - Mathematics

## Action: Computer Labs 2019-2020

Increase the number of computer labs accessible to the Math Division

**Leave Blank:** Continued Action

**Implementation Timeline:** 2020 - 2021

**Leave Blank:** 10/15/2017

**Leave Blank:**

**Identify related course/program outcomes:**

**Person(s) Responsible (Name and Position):** Division Chair of Mathematics in conjunction with the BSSOT Grant, Facilities, and IT.

**Rationale (With supporting data):** The impact from AB705 is tremendous in terms of facilities. We are in desperate need of additional computer labs with desktops preferably. We will triple the number of Math 21 courses currently offered and we need additional computer labs or we will have to teach the classes as hybrid or online to meet the demand.

Visalia:

Allow Math to use the Placement office SEQUOIA 157 as a classroom since it already is a computer lab.

Convert SEQUOIA 150 or JM 223 to a computer lab or one of our modular rooms.

Change Alpine 3 to a computer cart with laptops instead of tablets. We have had issues with the tablets charging.

Tulare:

Purchase 60 laptops for room B125 with charging carts.

Hanford:

Purchase 30 desktops computers to fit in desks in E92.

**Priority:** High

**Safety Issue:** No

**External Mandate:** Yes

**Safety/Mandate Explanation:** AB705 requires us to use high school data to place students in order to “maximize the probability that the student will enter and complete transfer-level coursework in English and mathematics within a one-year timeframe.” It also, prohibits, us “from requiring students to enroll in remedial English or mathematics coursework that lengthens their time to complete a degree unless placement research that includes consideration of high school grade point average and coursework shows that those students are highly unlikely to succeed in transfer-level coursework in English and mathematics.”

The impact from AB705 is tremendous in terms of facilities. We are in desperate need of additional computer labs with desktops preferably. We will triple the number of Math 21 courses currently offered and we need additional computer labs or we will have to teach the classes as hybrid or online to meet the demand.

### Update on Action

#### Updates

**Update Year:** 2020 - 2021

09/15/2020

**Status:** Action Completed

During the summer of 2019 two additional computer labs were created for the math department. The labs are currently enough for the number of statistics course that we are offering.

**Impact on District Objectives/Unit Outcomes (Not Required):** Because of the additional labs we have been able to effectively offer the number of sections of statistics that are needed for mathematics students. This has helped us to offer more transfer level mathematics course and better comply with the requirements set forth by AB705.

# Program Review - Mathematics

**Facilities** - This request could be considered Facilities, Instructional Equipment or Technology as all three are part of this request.

We are requesting that 1 of our rooms be converted to a computer lab with desktops. I reached out to Facilities and IT for quotes for what it would cost in terms of facilities, desktop computers, desks, cabling, etc. As this could depend on the room and the current infrastructure in place in that particular building, I gave Facilities and IT the following room options:

Sequoia 150  
Yokut 11, 12, 13

We anticipate 40 desktops in a room.

(Active)

**Why is this resource required for this action?:** The impact from AB705 is tremendous in terms of facilities. Specifically, we are in need of additional computer labs with desktops. We lose 20% of our teaching time with laptop carts and using them all day, every day, the batteries run out for our afternoon and evening instructors. Thus, laptop carts are not ideal. We have approximately tripled the number of Math 21 courses offered and we need additional computer labs to meet demands and potentially grow or we will have to teach the classes as hybrid or online which are not ideal modalities for all students. In order for Math 21 (Statistics) to articulate to the 4-year universities in California, our course outlines require that we use statistical software extensively throughout the course. For example, my students are on the computers every day throughout the entire semester except for possibly three or four days.

Based on previous requests, a computer cart for Alpine 3 with 45 laptops will run roughly \$60,000. This was the cost for the same set up in SJ two years ago.

THE QUOTE FOLLOWS FROM BYRON WOODS (Facilities) regarding remodeling a room.

Hi Jared,

Just following up on your program review request. I've provided Chris with an estimate of \$175k to convert a standard modular classroom (i.e. San Joaquin or Yokut) to a computer classroom (computer desks with built-in computers). This is a ballpark estimate based on our recent computer lab installation in Hanford earlier this year. Christine and Jennifer have been notified of your program review request. In fact, I believe Chris discussed it with Senior Management yesterday. I think they are still in the process of discussing details in regards to permanent versus mobile computer arrangements (I'm not involved in this conversation). Hopefully the above cost estimate allows you to proceed with your program review request. If you have any further questions, please feel free to contact me.

Thanks,

Byron Woods  
Dean of Facilities  
College of the Sequoias  
915 South Mooney Blvd.  
Visalia, CA 93277

Here is the Quote from Chris Sutherland (Dean) in charge of BSSOT monies that we have also been working with in regards to computer options.

Jared,

The quote for 60 laptop computers with carts was \$65,700 (30 per cart). This is the request made for Alpine 3, and Tulare (60 each). For 30 desktop computers in Hanford, the quotes was, \$41,500. This assumes that they will use their existing furniture.

# Program Review - Mathematics

Best,

Chris

**Notes (optional):** We understand that these amounts are larger than the amount set aside typically for above based projects and hope that other funding sources such as BSSOT will help us meet this request. We simply want it documented in our Program Review and hope the other funding (BSSOT) that we have been working with will fund our computer needs.

**Cost of Request (Nothing will be funded over the amount listed.):** 175000

## *Link Actions to District Objectives*

District Objectives: 2018-2021

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