

# [Plans for Mathematics](#) >> 2018 - 2019

## Mathematics CHC Instructional Annual Plan 2018-2019

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Name :

2018 - 2019 Mathematics CHC Instructional Annual Plan 2018-2019

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### Instructions

The annual plan provides the opportunity for each program to update their four-year action plan and requires each plan to provide the current status on their course outcomes assessment, progress on effectiveness measures, and progress each program has made on achieving their goals and objectives.

Please respond to the following questions. Please consult the [Integrated Planning and Program Review Handbook](#) for detailed instructions, the [timeline](#) for due dates, and the [schedule](#) for the four-year plan schedule.

### 1. Mission

**Updating this Question is Optional on the Annual Plan!**

a. Tell us your unit's mission: Provide a mission statement for your unit that clearly and succinctly describes your unit's purpose, idealistic motivations, and change it hopes to inspire.

b. Alignment with the college Mission: **Rubric Item** ([Mission Alignment](#)): The Mission of Crafton Hills College is to advance the educational, career, and personal success of our diverse campus community through engagement and learning. **In what ways does your program advance the mission of the college?**

a) The mission of the Mathematics Department is: "To provide services and courses that meet the mathematical needs of a diverse student population."

b) Mathematics Department Vision: To continue improving as a wicked-awesome, professional Mathematics Department that produces excellent and successful students.

The Mathematics Department strives to create a quality learning environment and instill higher order learning strategies along with quantitative reasoning skills for students to learn the material. The learning of mathematics increases critical thinking skills needed in academia and in

life and, thus, the Mathematics Department mission will impact success of students at Crafton Hills College and in their professional pursuits.

The Mathematics Department would like to maintain a wide range of courses and expand the number of sections being offered.

As far as dreaming big, the Mathematics Department would like a building dedicated to the Mathematics Department including such amenities as all smart computer classrooms, 3D projectors for all classrooms, faculty offices, tutoring, STEM, and student lounge area outside faculty offices. (See Long Beach City College Mathematics Department.)

In order to continue functioning as a department in a growing discipline, the Mathematics Department would like to see an increase in full-time mathematics faculty and reach the full-time to part-time instructor ratio of 75/25% (budget and economy permitting).

The department would like to obtain technology for use in the classroom which would provide additional student learning (budget and economy permitting). The department would like to see computer access for all students, functioning wireless connectivity technology for the projectors in all classrooms, higher bandwidth for faster connectivity for large number of devices in all instructional areas, and existing smart tables with power outlets should be connected to power and regularly maintained. The Mathematics Department would like high quality tablets issued to instructors because they can be used in a variety of ways to increase student engagement.

Mission of the college: "To advance the education and success of students in a quality learning environment."

Our mission and vision helping students get through the mathematics sequence which is required for both the A.A./A.S. degrees, most certificates, and transfer requirements. We try to provide help and support to students in their endeavor.

Our Vision of the Math Department fits within Goal 3.1, with a focus on providing excellence in teaching.

Various other portions of our plan, such as the department plans for retention and persistence, fall under Objective 4.1.1. which deals with increasing retention, success, and persistence.

Part of our vision as a quality department includes using SLO assessment data to modify courses as discussed in Objective 3.1.4. in the Educational Master Plan.

This document has many ideas and examples on how the department is attempting to achieve this goal/mission/vision whether it be quantitative knowledge/skills, real world scenario applications for mathematics and for other disciplines/areas, striving to create a quality learning environment for which to learn the material, or just incorporating inventions and technologies into the classroom. The Mathematics Department is implementing the requirements for AB-705 with the hopes that it will reduce the department's bad reputation as a "gate-keeper" who stops students from obtaining their goals.

In conclusion, with respect to the document in its entirety, the Mathematics Department fully acknowledges that there is some level of repetition within this report. However, the department feels that these points are worthy of repetition. Thank you very much.

Note: If the committee wishes to review the previous Program Review document from 2016-17, it can be found in Supporting Documents.

The Mathematics Department goals are in line with the Crafton Hills College mission, which is: "To advance the education and success of students in a quality learning environment."

## **2. Description of Program**

**Updating this Question is Optional on the Annual Plan!**

a. Organizational Structure and Staffing

- b. Describe any activities in addition to instruction that you provide.
- c. Describe any alternative modes of instruction and schedules of delivery: e.g.: online, hybrid, early morning, evening services.
- d. **Rubric Item:** Describe how your curriculum is up-to-date and [Needs-Based](#). Base the description on surveys, labor market data, transfer patterns such as GE, IGETC, CSU, AA-T, or AS-T, accreditation standards, and/or articulation agreements. Consider the results of your most recent curriculum reviews in this section.
- e. **Rubric Item:** Attach your [scheduling matrix](#) to show when courses in your area are offered. [Click here for sample!](#)

### **a. Organization (including staffing and structure).**

The development of this document fostered collaborative discussions on many aspects of the program, not all of which can be captured in the writing of this document. (More detail is provided in Question 6.)

The Mathematics Department is one of the departments under the current Division of Math, English, Art and Instructional Support. Our discipline currently includes 6 full-time instructors, and anywhere between 27 to 33 part-time instructors per semester (not including summer). Merrill Demming, was replaced when Brandi Bailes was hired last year but Kathleen Gibson, who made up the 7th full-time instructor, has since retired and has not yet been replaced. Considering the number of part-time faculty and students we service, our discipline is understaffed. The ratio of full-time to part-time faculty is 31%. The Chairs council recently prioritized Mathematics to be the first discipline to get an additional hire if funding becomes available.

Our department has access to printing services, but does not have any secretarial support.

Note that room prioritizations should be updated and revisited annually in the chairs meetings. The department had scheduling priority for 8 classrooms. Currently, MATH has priority for 10 classrooms: NRTH 101, NRTH 102, ART 127, CNTL 247, CNTL 237, CNTL 135, CNTL 134, WEST 111, CNTL 238, and CNTL 136, which have various degrees of technology. A 3D document camera and functioning wireless projector should be in all classrooms.

Any and all other classrooms that the department uses for courses is negotiated through the scheduling process. There will be major changes when R-25 is implemented. Since Schedule R-25 does not take individual sections into account, there is a problem when MATH courses has several sections of a course that are taught requiring computer and/or Internet access. Yet not all sections of a course are taught requiring computer access. There are many problems with R-25 which the Office of Instruction is addressing before it is fully implemented. Although "bring your own device" is an option which an instructor may require, wireless accessibility, wireless projectors, and bandwidth speed across all classrooms needs to be improved.

### **b. Mission, or primary purpose.**

The mission of the Mathematics Department is: "To provide services and courses that meet the mathematical needs of a diverse student population."

The Mathematics Department strives to create a quality learning environment and instill higher order learning strategies along with quantitative reasoning skills for students to learn the material. The learning of mathematics increases critical thinking skills needed in academia and in

life and, thus, the Mathematics Department mission will impact success of students at Crafton Hills College and in their professional pursuits.

The Mathematics Department goals are similar to the Crafton Hills College mission, which is: “To advance the education and success of students in a quality learning environment.”

### **c. Whom you serve (including demographics)?**

Data provided by the OIERP indicates that the Mathematics Department services nearly the same percentages of students as the college in terms of gender and ethnicity. The only dissimilarities in any demographics area, is in regards to certain age groups. As of 2011, our discipline serves 46.2% of the 19 or younger age group while the campus serves 34.1%, and also 1.4% of 50 or older age group, while the campus at 2.9%. The rest of the age demographics are, again, nearly the same percentages as the college. Gender and ethnicity are also similar to the college in percentages.

The majority of the mathematics students we serve at Crafton Hills College (94.5%) require preparatory courses in order to prepare them for their GE requirement and/or transfer requirements as well as part of the certificate programs offered in other disciplines. The department offers two degrees: Associate of Science Degree - Mathematics A.S. Degree, and also an Associate of Science Degree - Mathematics Transfer A.S. Degree which is to prepare engineering students, math majors, and science majors for their four year endeavors once they transfer.

The focus of whom do we serve continues to evolve as we adjust our course offerings due to the continued economic trends of the state.

### **d. What kind of services you provide?**

The Mathematics Department serves the campus by attending day and evening activities such as answering centers, awards ceremonies, club advising, as well as serving on numerous committees, attending meetings and mathematics conferences. The department also provides mathematics awards to students that the department believes is living up to the award criteria.

The Mathematics Department course offerings are one of the most diverse on campus (24 total courses) and provide various skill-level students with options for both growth and advancement toward their desired skill and/or degree. We offer math at all levels available to a community college, ranging from Basic Skills/Arithmetic, through Multivariable Calculus, Linear Algebra, Differential Equations and a new prestatistics course.

The Mathematics Department has become more involved with the tutoring center due to its restructuring. The department recommends tutors to the Tutoring Center, SLA (Structured Learning Assistance), and SI (Supplemental Instruction). The department responsibilities include transfer advocacy, mentoring, and guidance for students who seek campus services (personal, physical, and mental health as well as math skill performance). We also offer one-on-one mentoring and tutoring whether they are during or outside office hours. The department has offered, and will continue to provide, some linked courses.

We have a math club and also participate in the AMATYC Student Math League which is state and nationwide.

Participated in the implementation of Multiple Measures A.P. on campus which requires the department to interact with counseling and the assessment center. Department also participated in conference (use for later down in this document.)

### **e. How you provide them (including alternative modes and schedules of delivery: e.g.: online, hybrid, early morning, evening services)?**

The Mathematics Department serves students and incorporate best practices in a variety of math courses and in an assortment of different formats. Many community colleges offer the traditional semester length course, but the Crafton Hills Mathematics Department offers the same courses for those students who absorb the material at different paces. We have previously offered Math 943 and Math 953—open entry/open exit—for those who need a quick review of basic skills topics instead of opting for the traditional 18 week course. These classes cannot be offered as open entry/open exit, so these may be moved to the Noncredit Program/Courses. Besides the traditional 18 week courses, we also have 9 week and 13 week accelerated classes for many of our courses for those students who are motivated to get through a course in a shorter period of time.

With assistance from the California Acceleration Project (CAP), we are in the process of developing and offering for Fall 2017 a new PreStatistics course, Math 085. This is a 6.0 unit course, which will prepare students for Statistics, Math 110 and Psych 110. There is no prerequisite for this course, creating an alternative pathway for some non-STEM majors (determined by their departments).

Funding has been allocated through the Basic Skills Initiative (BSI) to support curriculum development to support the CAP pathways. The department supports and needs MATH faculty to develop curriculum and arrange appropriate training for all interested MATH faculty. A full-time faculty member would need release time to do this work.

There is also an Honors Math 110H course currently in CurricUNET. Hopefully this course will be articulated and able to be offered in Fall 2018.

The department offers classes in a variety of two, three, and four day-a-week formats, and are taught over the entire spectrum of the day—morning, afternoon, and evening classes. Our department is spread out during this spectrum which means that there is a full time instructor on campus at almost any hour of the operational day.

Currently the Mathematics Department has only one online/hybrid course: Math 095. Due to the fact that the Mathematics Department is so short-staffed on full-time faculty, we have not had the time and resources to pursue expanding the department's online/hybrid education program.

Although the department recognizes the necessity of certification to teach online/hybrid courses, it is extremely difficult for MATH faculty to complete the certification due to time constraints. Perhaps release time can be offered to accommodate instructors to become certified and create their online course. (Perhaps Equity or SSSP funds can help with this process.)

### **f. Rubric Item: Needs-Based Curriculum (Note: All instructional departments must consider the results of their most recent curriculum reviews in this section.)**

Any and all curriculum is either up to date or in the process of going through its 6 year revision. A new mathematics software course, Math 255 has been completed, which completes the lower division transfer mathematics sequence (the calculus sequence). It will be offered for the first time in Spring 2017. As mentioned earlier, MATH is in the process of adding a non-STEM pathway as well as a Honors Statistics course, Math 110H. We have also added a statistics lab

(math 117) to help students understand and utilize Excel. Excel is a commonly used software in the workforce and this lab is providing students with a tangible skill that they can use to build their resume. Using Excel in our statistic classes offers our disabled students, which make up approximately 10% of all of our students, a more accessible technology than a handheld calculator, such as the Ti series that has been used traditionally.

The department meets the GE requirements and is critical to all STEM majors. The departments preparatory courses are required for classes in the Social and Behavioral Sciences (e.g. Economics, Psychology, Sociology), Health and Wellness (e.g. Health), the Natural Sciences (e.g. Astronomy, Biology, Chemistry, Geology, Physics), and Quantitative Reasoning (e.g. Mathematics).

Whether as a departmental recommendation or as a prerequisite to a course, the preparatory classes affect Transfer Degrees (e.g. Business Administration, Communication, Geology, History, Mathematics, Political Science, Psychology, Sociology), and almost every Associate of Arts or Science Degrees.

### **g. Rubric Item: Scheduling Matrix (Attach your scheduling matrix.)**

**(Math Scheduling Matrix)** The department has attached a two page matrix. The first page with only an x to indicate the semester the course will be offered unless there are dire cuts. Some courses will be offered more often as long as there is demand. The second page includes the number of sections the department plans to offer as long as funding and demand permits.

## **3. External Factors with Significant Impact**

Updating this Question is Optional on the Annual Plan!

What external factors have a significant impact on your program? Please include the following as appropriate:

- a. Budgetary constraints or opportunities
- b. Competition from other institutions
- c. Requirements of four-year institutions
- d. Requirements imposed by regulations, policies, standards, and other mandates
- e. Job market
  - i) Requirements of prospective employers
  - ii) Developments in the field (both current and future)

### **a. Budgetary constraints or opportunities.**

Recently, the Mathematics Department lost two full-time faculty members to retirement (Merrill Demming and Kathleen Gibson). One has been replaced, so the department currently has six full-time instructors. Due to budgetary constraints the second instructor has not been replaced, however a MATH faculty has been prioritized as the first hire by Department Chairs Council. Without the second replacement the amount of stress and work required by the remaining faculty has not reduced. This includes, but is not limited to, SLO's, committee assignments, classroom assignments, and curriculum. For the spring of 2017, approximately 60 out of 84 classes (71%) of the mathematics courses are taught by part-time instructors. Two classes in Fall of 2016 were cancelled due to lack of instructors to teach courses. The Mathematics Department has tried to be perspicacious with respect to what courses are offered and protecting the number of sections offered whenever possible. However, maintaining academic excellence in the classroom has

become increasingly difficult due to the increased demands on instructors outside of the classroom setting.

Additionally the part-time instructors are only offered eight hours of paid flex time for each class. Part-time instructors need to be afforded more paid flex time and professional development. With new courses coming on-line in the math department (Math 085), additional training for part-time faculty is going to be imperative.

The math department has an opportunity with the incorporation of multiple measures and support from SSSP and Equity to help students complete their degree in a much more expedient time frame. As the new placement procedure takes effect more students will be in need in academic support.

## **b. Competition from other institutions.**

Mt. San Jacinto College has located a satellite campus in Banning, CA. They also offer college course work at both the Beaumont and Banning high schools, which include mathematics courses such as College Algebra and Calculus I (<http://www.msjc.edu>). Due to the close proximity of these locations, they likely could become an external threat to the mathematics program here at Crafton Hills.

Another external factor that could have a significant impact on student enrollments at Crafton Hills College are the multitude of online courses that surrounding community colleges offer such as College of the Desert, Mt. San Jacinto, Victorville College, RCC, for profit institutions, and other colleges. Further, four-year institutions are also providing online coursework that would be in direct competition with courses offered at Crafton Hills College. This provides students with an option that the Mathematics Department does not currently afford their students.

Due to the lower salary schedules for part-time instructors in our district, the competition with other schools makes it difficult to obtain and retain quality adjunct instructors. Hence the reason for cutting classes and the hiring of another full time instructor.

## **c. Requirements of four-year institutions.**

To support the transfer process, the Mathematics Department has articulation agreements with numerous four-year institutions, including the University of California Riverside (UCR) and California State University San Bernardino (CSUSB). The Articulation System Stimulating Interinstitutional Student Transfer (ASSIST) offers both students and educators a means to agree upon and identify which courses fulfill particular requirements (<http://www.assist.org/>). The courses that are articulated with CSUSB and UCR for the 2016-2017 academic year can be viewed using the provided links below. The mathematics department continuously strives to support students and improve the transfer process.

[Accepted IGETC CSU Baccalaureate Level Course List by Department at Crafton Hills College:](#)  
[Accepted IGETC UCR Baccalaureate Level Course List by Department at Crafton Hills College:](#)

(Note: IGETC stands for Intersegmental General Education Transfer Curriculum)

The Mathematics AA-T degree has been approved and all but 2 of our transfer level courses have been CI-D approved. The remaining 2 are in process of getting CI-D approved.

## **d. Requirements imposed by regulations, policies, standards, and other mandates.**

The Academic Senate at Crafton Hills College has developed guidelines/policies with respect to prioritizing course offerings during a time of fiscal crisis. The priority is as follows:

1. Courses required for Career-Technical degrees or certificates.
2. Courses required for Associate Degrees or transfer.
3. Developmental Courses (000-level, such as MATH090).
4. Basic Skills Courses (900-level)

It is clear that the data here at Crafton Hills College shows that the number of students starting in basic skills courses who continue on into higher level courses is small. However, a conclusion based on this data and/or a poor fiscal climate that this population no longer needs to be served is highly unreasonable and in direct conflict with one of the primary services and responsibilities of community colleges. What the data is pointing out is that there exists a significant problem that needs to be addressed. The response should not be to cut these entry level courses or lower their priority, but rather increase the priority and examine the reasons these students do not continue on with their academic careers. It is then, that one would find solutions and implement practices to improve their success and enrollment in subsequent coursework. This would benefit all disciplines that offer associate and transfer level courses. Often the poor persistence and retention of basic skills students are related to more personal issues and obstacles and not academic concerns (Pritchard & Wilson, 2003). In preparatory courses often it is the student's attitude not aptitude that affects altitude.

Pritchard, M. E., & Wilson, G. S. (2003). Using emotional and social factors to predict student success. *Journal of College Student Development*, 44(1), 18-28. Retrieved October 1, 2012, from ProQuest Psychology Journals database.

One of the ways in which the department is attempting to rectify this situation is by experimenting with multiple options for accelerated pathways (California Acceleration Program). Such as Math 085, fast track courses, and new placement procedures as mentioned above.

## **e. Job market -Requirements of prospective employers and Developments in the field (both current and future).**

### **i. Requirements of prospective employers.**

More students are seeking a college education and the number of re-entry students is also on the rise. People are looking to obtain new job skills or make a career changes. The nonprofit organization known as ACT (<http://www.act.org/>) has identified real world skills that employers believe are critical to job success. These skills include but are not limited to basic numeracy skills, problem solving strategies, analytical and research skills, and the ability to be critical thinkers. Being technologically literate and proficient requires all the skills previously mentioned and is a skill that, without question, is important in today's society. Mathematics courses provide students a means to obtain all the skills just mentioned. The mathematical skills that one possesses can have a direct impact on one's ability to be hired and obtain the career they desire. This is leading to an increase in demand of mathematics courses.

### **ii. Developments in the field.**

Improvements in the modalities of how online education can be delivered using platforms like Blackboard or Canvas, which incorporate synchronous and asynchronous interaction using online chat, online whiteboard and/or lecture, discussion boards, and computerized homework has made the option of an online mathematics course more appealing.

Computer-based homework has become a useful complementary tool that instructors can use to improve student learning. The demand for online mathematics courses will increase



over time and determining the best way to deliver these courses will involve much collaboration.

Meeting all of the ADA requirements for online teaching has significantly increased the workload for those teaching online, making it difficult for instructors to teach mathematics courses online. Not all disciplines lend itself well to the online environment. Math can be difficult to teach, as well as learn, in an online environment. One such example is describing a graphical model or describing a graph in detail.

The propensity to refrain from hiring additional full-time faculty due fiscal restraints has increased the workload on the remaining full-time mathematics instructors. Certainly the primary responsibility for instructors is constantly seeking ways to improve the interaction and learning within the classroom setting for their students. One way to achieve this goal is through the use of best practices. However, the ever increasing demands on instructors outside of the classroom setting is beginning to take the focus off of their primary responsibility and taxing one's ability to maintain academic excellence.

## **4. Progress on Outcomes Assessment (Annual Question)**

**Updating this Question is Required on the Annual Plan!**

Refer to the [SLO Cloud](#) to evaluate the results from your course level Student Learning Outcomes (SLOs) and to develop actions reflected in your program review action plan (i.e. Question 10).

a. Please summarize **course SLO assessment results**. Include a discussion of whether or not the program met its target for each course SLO.

b. Please describe any course and/or instructional improvements you plan to make as a result of the course SLO assessment(s).

c. What objective(s) or action step(s) will you add to Question 10 as a result of the SLO assessment(s)? If none, please explain.

a. All courses except for MATH 115 have been through at least one cycle of outcome assessment. Each semester most courses have had assessment data put into the SLO cloud. The department has updated the SLOs for MATH 110, MATH 103 and MATH 102 and several other during the fall in-service day. All courses have SLOs although a couple still need to be input into the SLO cloud.

b. The department has added lab sections to Prealgebra, a few sections of elementary algebra, and one intermediate algebra. As a result of SLO data the department is continuing to improve the course packets which contain detailed information for each course. This information is being placed on a newly developed department website for all full and part-time faculty to access. The website should result in improvement of consistency for the sections of each course which should help improve student success and outcome results.

c. The department will continue to have a SLO meeting near the end of each spring semester to discuss the SLO data and use the information to improve successful course completion.

[\(all math course SLOs\)](#)

## **5. Unit's Performance on Institutional Quantitative Effectiveness Indicators**

**Updating this Question is Required on the Annual Plan!**

Please discuss your program's performance on each data item below.

a. Instructional Program Health Evaluation Rubric

i) **Rubric Item:** Use Office of Institutional Effectiveness, Research, and Planning (OIERP) data to set a [Course Completion Rate](#) target and provide an explanation for the target that has been set. **Click [HERE](#) to access your program specific data.**

ii) **Rubric Item:** Use OIERP data to set a [Course Success Rate](#) target and provide an explanation for the target that has been set. **Click [HERE](#) to access your program specific data.**

iii) **Rubric Item:** What is your [FT/PT Faculty Ratio](#), how is it impacting your program, and student success? **Click [HERE](#) to access your program specific data.**

iv) **Rubric Item:** Use OIERP data to set a [WSCH/FTEF](#) Ratio target and provide an explanation for the target that has been set. Based on Faculty dialogue what is a feasible WSCH/FTEF (productivity) target for your area? (Note: 525 may not be a realistic target for your area.) **Click [HERE](#) to access your program specific data.**

v) **Rubric Item:** The [Fill rate](#) target is 80% or higher. Use the data provided by the OIERP and please provide a reason for any deviation from the target. This may involve a discussion around the appropriateness of the cap and how it was set. **Click [HERE](#) to access your program specific data.**

Please note that due to the significant changes to curriculum and course offerings, our data does not accurately reflect our current reality. We are working with the OIERP office to find a solution for data gathering and requesting disaggregated data based on the AB 705 updates.

i) Our target was to maintain 90% completion rate. Based on the data of an 88.7% completion rate last year and 90.6% the year before, the department feels that a 90% completion rate is still sound.

ii) The department had met the goal of 60%. The new course success rate target based on the OIERP was raised to 65%. This was be about an 8% increase over our last target and about a 1.5% increase over our highest success over our highest student success rate in the last 4 years. We previously choose this target because the department felthea the identified areas, such as course packets and increased classroom support, that could be improved over the next year. Since the college will be implementing multiple measures determined by the department and acceleration pathways in Fall of 2017, and full implementation was done in 2018, the department has not been able to accurate predictions on the impact on student success rates on individual courses. However, we do expect to see overall improvement in throughput rates. AS expected the success rated have dropped to the 50% ranges, varing by course. The target of 65% success may be harder to reach witht the new placement model eliminating the courses below intermediate algebra. Continued refinements on how the material is delivered and refining the placement of students should help to increas the success rates. With only one semester of incomplete data it it hard to make an accurate target.

iii) The departments FT/PT ratio seems to be staying about 31%. It has improved from 29%. However, this improvement is possibly due to the fact that fewer math sections are being offered. This ratio is far lower than it should be. Having a large portion of our math classes taught by part-time instructor has raised equity issues in that access to assistance and guidance in the course is seriously reduced, as part-time faculty do not hold office hours, as our full-time faculty do. Part-time faculty may be restricted in flexibility for make-up exams or quizzes. Part-time faculty do not interact with our campus student services such as the tutoring center or DSPS office, and therefore, may not educate their students on all of the services that are available to insure the student's success.

Consistency in courses has been reduced. As part-time faculty teach at a variety of campuses, we have seen that course content in some sections may not be consistent with the course guidelines. Some instructors are teaching similar courses at several campuses, but are not aware that there are variations in course requirements that they are not meeting. Some of our part-time instructors teach at colleges that are on different schedules (such as quarters or 16-week semesters) and struggle to present the same information in an 18-week semester. This has led, in some cases, to wasted class time, classes that are released early regularly, against policy, or equity issues as some students are needlessly pushed through material at a rate higher than their counterparts that are in a full-time instructor's class. It is also very hard to get part-time participation in training and methodology meetings. Increased participation in such meetings would help with consistency as well as improved student learning involvement.

As a department, we are strongly affected by a lack of part-time instructor involvement in department lead course improvements. There is a strong need for the department to update courses and create new courses to help improve throughput, equity, and success rates. However, with only 6 full-time instructors the department simply lacks the manpower to insure that these changes can be made. Large changes to curriculum, such as implementing Statway, can take a staggering amount of hours dedicated to research and paperwork. Hours that a department with a large portion of all classes offered and only 6 full-time instructors struggles to fulfill. As a department, although nobody feels the day-to-day impact more than the department chairs, a large portion of the department's time is dedicated to ensuring that our part-time faculty have the resources they need to be successful in the classroom and ensuring that all of our classes have instructors. As more and more colleges in the area open full-time positions, the pool of quality part-time instructors has dramatically reduced. This has put an undue strain on the department chairs to fill needed classes with well qualified instructors.

iv) The department has set a target of 535 for the WSCH/FTEF, which is the norm for California community colleges. Although the department is currently below that target partially due to budget restraints and room availability more strategic scheduling should help improve the ratio. However, the department believes that increasing the cap on the 200 level math courses and on MATH 110 from 35 students to 40 students will allow this increase. Having access to schedule math classes in computer rooms with seating of 40 will allow the increased caps. In order to allow for growth and to accommodate the new AB 705 placements the department has had to guess at the number of sections to offer. As the new curriculum and placements become more common, the department believes these ratios will be improved.

v) The department's fill rate target was 80%. The department has exceeded the previous target with a fill rate of 88% in the most of the past years, although with the new course patterns there has been a dip in the fill rates. The department is still above or close to the average fill rate for CHC, which is about 71%. Due to the need to grow the campus, keep the division sound and based on past fill rate data, the department will aim for a fill rate of 90%. More strategic scheduling will continue with the goal of balancing fill rate and the need to grow FTES.

## **6. Other Unit-Specific Quantitative and Qualitative Results**

### **Updating this Question is Optional on the Annual Plan!**

a. **Rubric Item:** How do your [program student demographics](#) relate to the college demographics? What are the discrepancies? – Click [HERE](#) to view program and college demographics by year.

b. Summarize the results of any quantitative or qualitative measures not provided in the previous question that you have chosen to gauge your program's effectiveness (e.g.: transfers, degrees,

certificates, satisfaction, enrollments, Perkin's data, equity data, student research experience, student clubs, etc.) Click [HERE](#) to access your program specific data on degrees and certificates.

c. What improvements/changes have you implemented or do you plan to implement as a result of your analysis of the measures illustrated in 6a and 6b?

In order to help improve the throughput rate of the basic skills courses to transfer level courses, the department is undertaking a significant change in placement using multiple measures and following the California Acceleration Project to create a single course pathway for students to get into statistics. This should help with campus degrees but not necessarily with Mathematics degrees.

- An increased success rate for students in Math 952 (Pre-Algebra) due to the implantation for the Structured Learning Assistance program.
- there has been a significant increase in the number of students in the 200 level mathematics courses which is also helping to increase the number of degrees in all of the sciences as well as in mathematics.
- We expect the rise in the Math 952 success rates to continue due to the fact that we have a better run and organized SLA program. This includes increased training of the tutors, and improved communication with the instructors.
- The persistence of students taking a preparatory math course (Math 942 through Math 095) is is verl low and addressed above. This is showing a significant problem the acceleration project should address.
- 76 mathematics degrees have been awarded in the last 5 years showing an increase of 40 degrees from the previous 5 year total of 36 mathematics degrees
- Number of students served = 10,836 during the years 2007 through 2011 for an average of 2,167 students per year. The number of students served increased each year from 2007 through 2010, but decreased in 2011
- The data reflects that most students (94.5%) (see question 1) place into a preparatory mathematics course which indicates that the primary population we serve is preparatory students.
- The department has added changed Math 962 (Pre-Algebra) and 085 because Math 942 (Arithmetic) through put is so bad
- The department hopes to maintain or increase the the number of math degrees in the next few years'

## 7. Evaluation

### Updating this Question is Optional on the Annual Plan!

Evaluation: You have already provided a description and analysis of the program in questions 1-6, please provide an analysis of what is going well/not well and why, in the following areas:

- Alternative modes and schedules of delivery (e.g.: online, hybrid, early morning, evening services, etc.)
- Partnerships (internal and external)
- Innovation and Implementation of best practices
- Efficiency in resource use
- Staffing
- Participation in shared governance (e.g., do unit members feel they participate effectively in planning and decision-making?)
- Professional development and training
- Compliance with applicable mandates

## **Representativeness of population served.**

(See question 1.) The data shows that the number of African American students making it through transfer level math courses is lower than the proportion represented on the campus. Some of the new multiple measures and support processes the department is developing should help with this issue, according to data from other campuses which have implemented the multiple measures and acceleration projects.

The Mathematics Department has created an online course for Math 095 (Intermediate Algebra). There was some discussion on the method for testing; the department came to the agreement that the tests for the course would be proctored at an approved location. As more faculty achieve the training to teach online the offering of online courses should address the needs of the online student.

For several years the department has been changing the course schedule to reflect the needs of the students. The department has changed from a majority of daily one hour classes to 2 hours/2 days-a-week or 1 ½ hour / 3 days-a-week. Late start classes and compressed course offerings for 9 weeks allow the motivated student to complete two math courses in one semester.

The Math Department has successfully expanded the course offering (by one course per class) for the 100 to 200 level courses (Trigonometry, Pre-Calculus, Calculus I and Calculus II) to have both morning and evening classes. Offering these courses as both morning and evening seems to have had the desired affect for giving students a greater opportunity to take the college level classes and a more varied schedule which then enables them to transfer in a more timely fashion. We are also offering new courses, Math 200 (Discrete Structures), MATH 255 ( a course in MATLAB), MATH 106 for the elementary teachers, as well as support labs for the developmental courses to meet the needs of specific students.

Offering a larger variety of meeting patterns in the course schedule seems to have been helpful to the students and essentially allowing the student to have a more diverse/flexible course schedule. The department has been fortunate that the math faculty, as a whole, varies their schedules so that there is full time faculty on campus throughout the day.

Some of the faculty have been working with pc tablets, smart pens, pod casts, and virtual white boards. Student participation and engagement has increased with the use of the pc tablet.

Unfortunately there are not sufficient funds for the mathematics faculty to have a tablet to use in all classrooms. The smart pens requires either an instructor or a student to take notes, which also captures the instructors' voice during lecture; while it is good to have the notes, the voice program that accompanies the pen does not synchronize well with the lectures. Also, the student note-taker can be so busy taking proper notes that their own concentration of the lecture may be compromised. Therefore, a student who is strong in mathematics should be chosen to do this.

The videos have been well received by the students, however these should only be used as a supplement to the lecture. It is by no means a substitute for attending class. These documents and videos can be posted on Blackboard, MyMathLab (web based tool provided by the publisher for a specific text), and other web tools.

### **Partnerships (internal and external).**

The Mathematics Department currently as been involved with 5 linked courses (learning communities)—basic skills classes partnered with English, Geology and Chemistry. The best fit seemed to be with the sciences even though there have been no statistics to support our anecdotal

conclusions. This program has been put on hold as the success rates were not showing significant improvement.

Currently, the Mathematics Department works cooperatively with the staff for the STEM students as well as with DSPS and EOPS students.

The department has strengthened its connection with the Tutoring Center and have discussed, interest in helping identify, train and mentor tutors. We have also volunteered to provide worksheets, power points, videos, a list of web sites, etc., along with time to help develop workshops for the students utilizing the Tutoring Center. The SLA program also works with the tutorcenter and the acceleration project will require significant involvement with the tutor center.

The department would like to start training sessions with both full and part-time instructors on how to encourage students to continue their mathematics education by guiding the students into the appropriate sequence of math classes.

### **Implementation of best practices.**

The department continues to discuss best practices, focusing on student engagement and student-centered instructional strategies. We continue deriving new methods for instruction for such activities as: factoring, solving polynomials, simplifying trigonometric identities, and solving word problems. Part-time faculty are encouraged to attend department meetings and orientations held at the beginning of the semester to discuss these strategies as well as the use of smart pens, web tools, computers, and MyMathLab online homework assignments as ways to increase student understanding and retention.

SLA (Structured Learning Assistance) was added to the Math 952 (Pre-Algebra) courses. The data for this addition has shown significant improvements in student completion and success rates. The department continues to analyze the data and discuss the best direction to proceed. (See question 4 for data.) There is a portion of the student body (1/3) that still demonstrates a need for the Math 942 course.

There is still a need for an open tutoring program on Saturdays. In the past this was run with volunteer full-time and part-time instructors. The discussions are ongoing with the Tutoring Center to coordinate with the department to have peer tutors provided for the Saturday sessions.

### **Efficiency in operations/Efficiency in**

#### **resource use.**

The department would like to increase white boards area and technology in the classrooms to include wireless projectors, document projectors, and computers for the students. This would increase the efficiency and creativity in instruction as well as promote student success.

With the current demands for activities outside of the classroom combined with the loss of full-time faculty, it has become increasingly difficult to maintain efficiency, student contact, consistency, and excellence in instruction.

With the loss of the academic secretary several years ago, we have continued to operate at less than optimal efficiency. Having the secretary helped save time in getting tests and work sheets reproduced as well as other book-keeping tasks completed. This would also be an excellent aid for department chairs whose time is overtaxed during the creation of the semester schedules,

revision of curricula, letters of recommendation, minutes for meetings, etc., making it increasingly difficult to keep up with their classroom responsibilities.

### **Staffing.**

The mathematics department is currently short 1 full-time faculty. With a full-time/part-time ratio of 31% (see question 5) not counting overload for fulltime instructors. in spite of the conservative number of class offerings the department is still is well below the required 75% full time faculty. There are many excellent and qualified instructors teaching part-time for the department—on average there are between 20-30—however they cannot provide the same level of support and availability needed for the students’ success. As hiring has increased around the state, the pool of highly qualified and creative part-time faculty has decreased.

### **Participation in shared governance (e.g., do unit members feel they participate effectively in planning and decision-making?)**

The department faculty as a whole takes their obligations to the campus very seriously; not only sitting on committees but meeting as a department to continue improving the program. The development of this document fostered collaborative discussions on many aspects of the program, not all of which can be captured in the writing of this document. Also, many of the questions asked on this document have taken place in departmental meetings on many occasions throughout the years in ad nauseam. All of the members of the department feel that our opinions and statements are respected and encouraged. Whereas we have achieved consensus in many areas, we also respectfully agree to disagree on other peripheral items.

The participation and comments from part-time instructors is encouraged and has been beneficial to the department as a whole.

The mathematics faculty feel we are well represented on the campus with each one of sitting on two or more committees. However, once again, with more and more of the departments' time being focused elsewhere, it is difficult to maintain quality classroom instruction as well as student support and success.

### **Professional Development and Training.**

Members of our department attend many of the professional development activities provided on the campus as well as attending conferences such as AMATYC and CMC<sup>3</sup>, #CSN conferences, California Acceleration Project conferences, and CTA.

However we find that there are no specific training sessions for disciplines or andragogy based instructional strategies, for professional development on campus. We hope to provide such trainings in the future with the support of administration and grant funding.

### **Innovation.**

As mentioned earlier, some faculty are assigning homework on MyMathLab, pc tablets, power points, document projectors, webcam, posting lecture notes via Camtasia or smart pens. Some are posting notes, handouts and practice tests on Blackboard, MyMathLab, Facebook and other

web based venues in order to get information to our students and encourage discussion. Lastly, some are also using YouTube and other websites to deliver alternative methods of instruction. The department is working on a new brochure to inform students of the pathways to transfer classes. The development of a department website geared to information for part-time faculty is helping with communication of content and expectations for each course.

### **Compliance with applicable mandates.**

The mathematics transfer degree all of transferrable math classes the CI-D approval. The Mathematics degree was also changed to be in compliance with State degree options.

## **8. Vision**

### **Updating this Question is Optional on the Annual Plan!**

a. Tell us your unit's vision: Where would you like your program to be four years from now? Dream big while considering any upcoming changes (e.g.: new buildings, labs, growth, changes in the discipline etc.).

b. Alignment with the college Vision: **Rubric Item ([Vision Alignment](#)):** The Vision of Crafton Hills College is to be the college of choice for students who seek deep learning, personal growth, a supportive community, and a beautiful collegiate setting. **In what ways does your program advance and align with the vision of the college?**

a) The mission of the Mathematics Department is: "To provide services and courses that meet the mathematical needs of a diverse student population."

b) Mathematics Department Vision: To be a quality mathematics department that produces excellent and successful students.

The Mathematics Department strives to create a quality learning environment and instill higher order learning strategies along with quantitative reasoning skills for students to learn the material. The learning of mathematics increases critical thinking skills needed in academia and in life and, thus, the Mathematics Department mission will impact success of students at Crafton Hills College and in their professional pursuits.

The Mathematics Department would like to maintain a wide range of courses and expand the number of sections being offered.

As far as dreaming big, the mathematics department would like a building dedicated to the math department including such amenities as all smart computer classrooms, 3d projectors for all classrooms, whiteboards on all wall surfaces of each classroom, faculty offices, tutoring, STEM, and student lounge area outside faculty offices. (See Long Beach City College Mathematics Department.)

The department would like to see an increase in full-time mathematics faculty and reach the full-time to part-time instructor ratio of 50% (budget and economy permitting).

The department would like to obtain technology for use in the classroom which would provide additional student learning (budget and economy permitting). The department would like to see white boards wrapping around all walls so the entire class could be working at once at the board. Computer access for all students. Wireless connectivity technology for the projectors. High quality tablets issued to instructors which can be used in a variety of ways to increase student engagement. Higher bandwidth for faster connectivity for large number of devices in all instructional areas.



Mission of the college: "To advance the education and success of students in a quality learning environment."

Our mission and vision helping students get through the mathematics sequence which is required for both the A.A./A.S. degrees, most certificates, and transfer requirements. We try to provide help and support to students in their endeavor.

Our Vision of the Math Department fits within Goal 3.1, with a focus on providing excellence in teaching.

Various other portions of our plan, such as the department plans for retention and persistence, fall under Objective 4.1.1. which deals with increasing retention, success, and persistence.

Part of our vision as a quality department includes using SLO assessment data to modify courses as discussed in Objective 3.1.4. in the Educational Master Plan.

This document has many ideas and examples on how the department is attempting to achieve this goal/mission/vision whether it be quantitative knowledge/skills, real world scenario applications for mathematics and for other disciplines/areas, striving to create a quality learning environment for which to learn the material, or just incorporating inventions and technologies into the classroom. Mathematics gets a bad reputation as a gate keeper which stops students from obtaining their goals, but the Crafton Hills Mathematics Department has been and always will continue to find ways for students to reach them.

In conclusion, with respect to the document in its entirety, the Mathematics Department fully acknowledges that there is some level of repetition within this report, however the department feels that these points are worthy of repetition. Thank you.

Note: If the committee wishes to review the previous Program Review document from 2009, it can be found in Supporting Documents.

The Mathematics Department goals are similar to the Crafton Hills College mission, which is: "To advance the education and success of students in a quality learning environment."

## **9. Progress on Prior Goals**

### **Updating this Question is Required on the Annual Plan!**

Briefly summarize the progress your unit has made in meeting the goals and objectives identified in your last Four-Year Action Plan.

- **1 - Goal - Engage students in meaningful learning.**

To incorporate practices and educational structures and facilities that will provide students with the opportunity to be engaged and participate fully in meaningful and purposeful learning experiences.

Priority Rank:

1

**Objectives:**

- **1.1 - Objective - Increase the number of students served by full-time faculty members as measured by an increase to the full-time to part-time faculty ratio.**

Priority Rank:

1

Original Start Date:

10/15/2012

Original End Date:

07/01/2021

Revised Start Date:

10/15/2012

Revised End Date:

07/01/2021

Responsible Person:

All full-time faculty

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

**Resource Requests:**

▪ **1.1.r1 - Hiring faculty.**

**Description**

Hire at least two full time math faculty.

**Rationale**

The full-time to part-time for mathematics is very low which is not in best interest of the students.

Resource Type:

Ongoing

Expenditure Category:

Contract Classroom Inst. (1100)

Funded:

No

Funding Source:

General Fund

First Year Cost/Savings:

\$160,000.00/\$0.00

Second Year Cost/Savings:

\$160,000.00/\$0.00

Third Year Cost/Savings:

\$160,000.00/\$0.00

**Actions/Activities:**

▪ **1.1.a1 - Hire additional full-time faculty.**

To provide our students with the best possible resources to succeed in their mathematics curriculum, there is a need to have a more robust full-time faculty ratio. Our part-time faculty are hard working individuals but are usually working at several different colleges, hence they cannot devote a lot of time to our campus' needs. We need more full-time faculty that can devote their time to this campus and our students.

Start Date:

10/15/2012

End Date:

07/01/2021

Responsible Person:

Department Chair and Dean

Status Code:

Work is Planned but not yet firmly scheduled

**Progress Description:**

Additional full time faculty has not been confirmed at this time. The full-time faculty beired are to replace retirees.

**Measurements/Documentation of Progress:**

One additional faculty was hired in the spring of 2018 but the FTEF ratio of full time to part-time is still about 31%.

- **1.2 - Objective - To provide excellence in teaching focusing on the classroom setting.**

To provide excellence in teaching by implementing a variety of best practices in the teaching of mathematics in order to reach all student learning styles.

Priority Rank:

4

Original Start Date:

10/15/2012

Original End Date:

12/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

12/15/2021

Responsible Person:

Mathematics Faculty

Strategic Direction:

1. Promote Student Success

Impact Type:

Department

Institutional Learning Outcome:

-- Pick One --

**Resource Requests:**

- **1.2.r1 - Support conference attendance of mathematics faculty.**

**Description**

**Rationale**

To improve mathematics instruction and increase student success.

Resource Type:

Ongoing

Expenditure Category:

Conference and Travel (5200)

Funded:

No

Funding Source:

SEA Funds

First Year Cost/Savings:

\$5,000.00/\$0.00

Second Year Cost/Savings:

\$5,000.00/\$0.00

Third Year Cost/Savings:

\$5,000.00/\$0.00

**Actions/Activities:**

▪ **1.2.a1 - Identify and research best practices.**

Obtain and share amongst the full-time and part-time faculty information on best practices on an ongoing and regular basis.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty

Status Code:

Work is Underway

**Progress Description:**

Discussions of best practices occur at the majority of department meeting amongst full and part-time faculty

**Measurements/Documentation of Progress:**

minutes of meetings reflecting the discussions as well as additional training sessions offered to full and part-time faculty

▪ **1.2.a2 - Devote parts of department meetings to share new teaching strategies.**

Ongoing departmental discussions.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty

Status Code:

Work is Underway

**Progress Description:**

discussions are ongoing at Department meetings

**Measurements/Documentation of Progress:**

meeting notes posted reflecting the discussions

▪ **1.2.a3 - Promote conference attendance.**

We want to have the ability to attend conferences that relate to the teaching of mathematics to improve student success.

Start Date:

10/29/2012

End Date:

12/29/2021

Responsible Person:

Mathematics Faculty

Status Code:

Work is Completed and Ongoing

**Progress Description:**

Full and part-time mathematics faculty have been attending conferences on a regular basis annually.

**Measurements/Documentation of Progress:**

conference attendance is tracked on work reports and reported out to the appropriate committees on campus. Information from conferences are shared with all faculty.

o **1.3 - Objective - To provide balanced schedule offerings for all courses.**

To provide all students with a wide variety of course offerings and times; evenly distributed throughout the morning, afternoon and evening. If the department is to have a balanced schedule of offerings and be able to increase the number of sections offered then the department must have dedicated classrooms appropriate to mathematics instruction.

Priority Rank:

5

Original Start Date:

10/15/2012

Original End Date:

11/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and Dean

Strategic Direction:

4. Expand Access

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

**Resource Requests:**

▪ **1.3.r1 - Increase the number of course offerings.**

**Description**

Increase the number of section offerings: 6 per year.

**Rationale**

Math is the gate keeper for most degrees on campus and is a prerequisite or departmental recommendation for many programs and courses at Crafton Hills College.

Resource Type:

Ongoing

Expenditure Category:

Instructors Day/Hourly (1300)

Funded:

No

Funding Source:  
General Fund  
First Year Cost/Savings:  
\$37,730.00/\$0.00  
Second Year Cost/Savings:  
\$37,730.00/\$0.00  
Third Year Cost/Savings:  
\$37,730.00/\$0.00

**Actions/Activities:**

▪ **1.3.a1 - To increase the number of course offerings.**

Campus needs to grow and the math department can help attain that goal.

Start Date:

10/15/2012

End Date:

12/15/2021

Responsible Person:

Department Chair and Dean

Status Code:

Work is Completed and Ongoing

**Progress Description:**

with the cahnges from AB 705 the configuration of math classes is being revises and the number of offerings are still being adjusted.

**Measurements/Documentation of Progress:**

fill rates and need for sections

▪ **1.3.a2 - To obtain priority scheduling in additional rooms.**

To obtain priority scheduling in additional rooms in order to increase the number of sections offered.

Start Date:

11/15/2014

End Date:

08/15/2025

Responsible Person:

Dept. Chair and Dean

Status Code:

Work is Completed and Ongoing

**Progress Description:**

with the completion of the construction more rooms are available

**Measurements/Documentation of Progress:**

more rooms are available to math courses.

○ **1.4 - Objective - To improve the quality of the learning environment for teaching mathematics with appropriately designed classrooms.**

To obtain classrooms, furniture and technology that are appropriate for best practices in the teaching mathematics .

Priority Rank:

2

Original Start Date:

10/15/2012

Original End Date:

11/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and Dean

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

**Actions/Activities:**

▪ **1.4.a1 - Obtain wireless capable projectors.**

Install a permanent mounted wireless data projector in all classrooms used by the mathematics department. NORTH 101, 102 , CHL 202 and CNTL have been done.

Start Date:

11/15/2010

End Date:

03/15/2021

Responsible Person:

Department Chair and Dean

Status Code:

Work is Completed and Ongoing

**Progress Description:**

two rooms are currently outfitted with wireless connections to the projectors additional connections are still needed

**Measurements/Documentation of Progress:**

NORTH 102 and WEST 111 have connections other room are still non need.

▪ **1.4.a2 - Improve furniture for technology in additional classrooms.**

To obtain computer lab furniture that supports computers with fold down monitors so that computers can be stored while not in use.

Start Date:

10/15/2010

End Date:

05/31/2021

Responsible Person:

Department Chair and Dean

Status Code:

Work is Completed and Ongoing

**Progress Description:**

all rooms that currently have computers prioritized to the math department have updated furniture.

**Measurements/Documentation of Progress:**

currently the rooms with computers do have the requested computers.

- **1.4.a3 - To have sufficient custodial support.**

Due to shortage of custodial staff, classroom maintenance has been compromised and inappropriately maintained to ensure a proper learning environment. With additional custodial support this could be alleviated.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Director, facilities and operations

Status Code:

Work is Planned but not yet firmly scheduled

**Progress Description:**

some rooms are cleaner but the custodian staff is still short and has been made worse with the opening of the additional space.

**Measurements/Documentation of Progress:**

observation of cleaner rooms and restrooms

- **1.4.a4 - Obtain Document Projectors.**

Obtain document projectors for all classrooms used by the mathematics department.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

All mathematics faculty.

Status Code:

Work is Completed

**Progress Description:**

The rooms which the math department has priority to currently have projectors

**Measurements/Documentation of Progress:**

the projectors are in the rooms

- **1.4.a5 - Reorienting NRTH 101 and 102.**

To reorient the NRTH classrooms.

Start Date:

10/15/2012

End Date:

05/31/2021

Responsible Person:

Department Chair and Dean



Status Code:

Work is Planned but not yet firmly scheduled

**Progress Description:**

due to restrictions on projectors and the desks, this request is not likely to be achieved, but is still a desired configuration. With the removal of the book case the rooms is much better suited for teaching.

**Measurements/Documentation of Progress:**

this is an observable result when the rooms are reoriented

- **1.5 - Objective - To increase the success of mathematics students through virtualization using PC/Tablets, iPads, or notebooks in classrooms.**

To provide support to mathematics students through virtualization using PC/Tablets or Pads in classrooms or have more dedicated rooms with hardwired/stationary computers.

Priority Rank:

7

Original Start Date:

10/15/2012

Original End Date:

11/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

11/15/2021

Responsible Person:

Department Chair and Dean

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

**Resource Requests:**

- **1.5.r1 - Obtain PC Tablets for faculty.**

**Description**

Obtain high quality tablets or notebooks for faculty use in classrooms such as Surface Pro or Surface Notebook.

**Rationale**

To improve active learning in the classroom and to capture lecture notes for posting on a web based site such as Blackboard.

Resource Type:

Ongoing

Expenditure Category:

Instructional Supplies (4300)

Funded:

No

Funding Source:

SEA Funds or one time funding  
First Year Cost/Savings:  
\$15,000.00/\$0.00

**Actions/Activities:**

- **1.5.a1 - Meet with IT department.**  
Meeting with IT to determine feasibility.  
Start Date:  
03/16/2012  
End Date:  
05/31/2021  
Responsible Person:  
All mathematics faculty  
Status Code:  
Work is Planned but not yet firmly scheduled  
**Progress Description:**  
this meeting has not yet been scheduled  
**Measurements/Documentation of Progress:**  
meeting notes
- **1.5.a2 - Obtain PC tablets.**  
To capture lecture notes and virtual office hours, which can be made available to mathematics students.  
Start Date:  
10/15/2012  
End Date:  
11/15/2021  
Responsible Person:  
Department Chair and Dean  
Status Code:  
Work is Planned but not yet firmly scheduled  
**Progress Description:**  
no progress in this as it is still planned  
**Measurements/Documentation of Progress:**  
the number of tablets available to faculty
- **1.5.a3 - Obtain wireless capability for permanently mounted projectors.**  
Start Date:  
03/16/2012  
End Date:  
11/15/2021  
Responsible Person:  
Dean and Mathematics Faculty  
Status Code:  
Work is Planned but not yet firmly scheduled  
**Progress Description:**  
there are only two room math i sscheduled into which have the wireless capacity (as far as we know)

**Measurements/Documentation of Progress:**

the rooms will be documented to have the capability, on additional rooms are currently updated

- **1.5.a4 - Mathematics Software (Matlab)**

The math students need access to appropriate software to address diverse learning styles and teaching modalities. Software such as: Green Globes, Geogebra, Geometers sketchpad. For the higher courses such as Math 255, software such as Matlab or Mathematica.

Start Date:

12/01/2016

End Date:

12/01/2021

Responsible Person:

All Mathematics Faculty

Status Code:

Work is Planned but not yet firmly scheduled

**Progress Description:**

there is an older version available to students on campus

**Measurements/Documentation of Progress:**

the number of computers with MATLAB installed

- **1.6 - Objective - To increase math student success by working in collaboration with the tutoring center.**

Priority Rank:

9

Original Start Date:

10/15/2012

Original End Date:

11/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

11/15/2021

Responsible Person:

Department Chair

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

**Actions/Activities:**

- **1.6.a1 - Advocate for hiring mathematics tutors.**

There is a need for peer tutors to help with the support labs that we currently have for some of our classes. As the Math Department hopes to move toward, having more lab supported classes it is essential to staff the

computer labs with tutors that are trained to use the software and help the instructors.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Tutoring Center Coordinator

Status Code:

Work is Completed and Ongoing

**Progress Description:**

some faculty do try to recruit tutors, flyers are being given to the faculty to disseminate to possible tutors.

**Measurements/Documentation of Progress:**

the number of tutors for mathematics should be increased to accommodate all courses. Unfulfilled demand will be documented. There are not enough tutors currently to meet the needs of the embedded tutoring .

- **1.6.a2 - Encourage math faculty to recommend good students to apply to be tutors.**

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty

Status Code:

Work is Completed and Ongoing

**Progress Description:**

not all faculty are recruiting tutors although several of the full time faculty are.

**Measurements/Documentation of Progress:**

the number of referrals of tutor applicants should be increasing

- **1.6.a3 - Encourage faculty to send more students to the tutoring center.**

In order to help students to be more successful, the faculty need to encourage students to make better use of the tutoring center.

Start Date:

10/15/2012

End Date:

12/15/2021

Responsible Person:

Mathematics Faculty

Status Code:

Work is Underway

**Progress Description:**

Use of embedded tutors and with the help of a math faculty in the tutoring center the number of students should start increasing in the tutor center. Without a Faculty lead in the tutor center, it has been difficult for the services needed by the math students to be provided. Hopefully now that there is a faculty in the tutor center some of the problems will be alleviated.

**Measurements/Documentation of Progress:**

data from the tutor center and faculty followup on their students should show increases

- **1.6.a4 - Increase faculty involvement with the Math component of the Tutoring Center**

Encourage full-time faculty to hold office hours in the tutoring center and encourage part-time faculty to use their professional development for student contact in the tutoring center. This could include faculty involvement in offering diverse workshops through the tutoring center.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Department Chair and Dean

Status Code:

Work is Planned but not yet firmly scheduled

**Progress Description:**

currently faculty involvement is very sporadic in the tutor center.

**Measurements/Documentation of Progress:**

recording of faculty hours in tutor center and meetings with the center should be increasing although they are not.

- **1.6.a5 - Obtain tutors for Saturday tutoring.**

Explore ways to involve the tutoring center to provide staffing for Saturday tutoring.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Tutoring Center Mathematics Coordinator

Status Code:

Work is Planned but not yet firmly scheduled

**Progress Description:**

funding and appropriate line of site supervision are the main barriers to this objective. As a result there is no immediate strategy to start up Saturday tutoring again.

**Measurements/Documentation of Progress:**

hours recorded for Saturday tutoring ( currently non existent)

- **1.7 - Objective - Expand the current math program and course offerings to better meet student needs and demand.**

Priority Rank:

6

Original Start Date:

10/15/2012

Original End Date:

11/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

11/15/2021

Responsible Person:

All Full-Time Mathematics Faculty

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

**Resource Requests:**

- **1.7.r1 - Multiple Measures**

**Description**

**Rationale**

Travel, stipends, reassigned time or something of this nature so as to explore multiple measures at other colleges.

Resource Type:

Ongoing

Expenditure Category:

Reassigned Time (1102)

Funded:

No

Funding Source:

Pathways and SEA

First Year Cost/Savings:

\$7,000.00/\$0.00

Second Year Cost/Savings:

\$3,000.00/\$0.00

- **1.7.r2 - Participate in mathematics faculty retreat**

**Description**

The math department including full-time and part-time faculty need dedicated time to analyze the current curriculum from start to finish and make changes as needed, including alternative paths to GE transfer courses.

**Rationale**

Increase student success. There could be long term savings involved as students move throughout the math sequence more efficiently.

Resource Type:

One-time

Expenditure Category:

Substitutes Day/Hourly (1301)

Funded:

No

Funding Source:

Pathways and SEA

First Year Cost/Savings:

\$4,500.00/\$0.00

**Actions/Activities:**

- **1.7.a1 - Multiple Measures**

With the new multiple measures placement models many students will need additional support for the gaps in their knowledge of mathematics.

The department should explore models at other colleges to determine what is the best pathway to increase students success.

Start Date:

12/01/2016

End Date:

12/01/2021

Responsible Person:

Mathematics Department

Status Code:

Work is Completed and Ongoing

**Progress Description:**

The multiple measures assessment process has been changed and one round has been completed. Changes are being made for the second round of the multiple measures process for placement

**Measurements/Documentation of Progress:**

multiple measures are being used in Accuplacer and updated annually. Data is being collected on how students are placing

- **1.7.a2 - Participate in mathematics faculty retreat**

Hold retreats to work on modifications due to multiple measures, SLO cycle, and new math pathway.

Continue to work on common assessment and eligibility rules for courses.

Start Date:

10/15/2012

End Date:

12/01/2021

Responsible Person:

Mathematics Faculty

Status Code:

Work is Underway

**Progress Description:**

Multiple measures, the SLO cycle, and math pathways is a reoccurring discussion within department meetings

**Measurements/Documentation of Progress:**

when held there will be notes and actions resultiing from the retreat.

- **2 - Goal - Continue to engage in evidence-based decision making.**

To obtain current data and analyze it so that we can better serve our students. Our main goal is to analyze retention and success data. However, we need also to obtain/analyze data on the viability of our fast track classes.

Priority Rank:

3

**Objectives:**

- **2.1 - Objective - To improve student success in mathematics courses by participating in multiple measures and the acceleration project.**

Continue to meet with the research department with respect to multiple measures eligibility rules and alternative accelerated pathways.

Priority Rank:

3

Original Start Date:

10/15/2012

Original End Date:

11/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and OIERP

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

Status Code:

Work is Completed and Ongoing

**Progress Description:**

the department is continuing to revise the placement rules and modify the course offeriengs.

- **2.2 - Objective - Increase student success by gathering information on, and implementing best practices for, the teaching of mathematics.**

Collect data on effectiveness on Best Practices.

Priority Rank:

8

Original Start Date:

10/15/2012



Original End Date:  
11/15/2021  
Revised Start Date:  
10/15/2012  
Revised End Date:  
11/15/2021  
Responsible Person:  
All Full-Time Mathematics Faculty  
Strategic Direction:  
1. Promote Student Success  
Impact Type:  
Only Students  
Institutional Learning Outcome:  
-- Pick One --

**Actions/Activities:**

- **2.2.a1 - Research math class impact on student self efficacy.**  
Obtain data on how CHC math classes impact students' self efficacy.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty

Status Code:

Work is Planned but not yet firmly scheduled

**Progress Description:**

surveys were given fall if 18 to classes and will be given again Spring 19

**Measurements/Documentation of Progress:**

ongoing surveys to obtain information from the students are being given and results are analyzed each semester

- **2.3 - Objective - Obtain data on how Crafton Hills College mathematics classes impact students' self efficacy.**

Obtain data on how CHC math classes affect the students self confidence in math; self efficacy, motivation and persistence.

Priority Rank:

11

Original Start Date:

10/15/2012

Original End Date:

12/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

12/15/2021

Responsible Person:

All mathematics faculty

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

**Actions/Activities:**

▪ **2.3.a1 - Analyze Data**

Ongoing activity. Data will have to be analyzed to address department SLO's

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and OIERP

Status Code:

Work is Underway

**Progress Description:**

Data is being collected and analyzed in regards to department SLO's.

**Measurements/Documentation of Progress:**

noted from department meetings

○ **2.4 - Objective - Increase student success by investigating the factors influencing student persistence through the math sequence.**

Priority Rank:

10

Original Start Date:

10/15/2012

Original End Date:

11/15/2021

Revised Start Date:

10/15/2012

Revised End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and OIERP

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

-- Pick One --

**Actions/Activities:**

▪ **2.4.a1 - Data mining.**

The department would like data on student success based on their grade in the previous math course. Modifications to grading procedures will be discussed.

Start Date:

10/15/2015

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and OIERP

Status Code:

Work is Underway

**Progress Description:**

The department is continuing to obtain data regarding how students are self reporting, what class was recommended, what class students actually took, as well as student's success.

**Measurements/Documentation of Progress:**

requesta and results are maintained in IERP and the math department

- **2.4.a2 - Explore intervention to increase persistence in the mathematics sequence.**

Modify and implement survey on why students do not have persistence to the next level of mathematics. The results of this survey will then be used for training workshops with all math faculty to help find ways to increase student persistence.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and OIERP

Status Code:

Work is Underway

**Progress Description:**

Modifications to the survey is ongoing in order for the faculty to discuss which factors are preventing students to persist.

**Measurements/Documentation of Progress:**

results from one semester to the next will be compared to see if there are improvements. Data is not yet available since the major changes due to the implementation of AB 705 .

## **10. Four-Year Action Plan (Goals, Objectives, Resources, and Actions)**

Updating this Question is **Required** on the Annual Plan!

**Rubric Item:** Reflect on your responses to all the previous questions. Complete the Four-Year Action Plan, entering the specific program goals ([goal rubric](#)) and objectives ([objective rubric](#)) you have formulated to maintain or enhance your strengths, or to address identified weaknesses.

**In writing your objectives and developing your resource requests, take into account student**

**learning and program assessment results.** Assign an overall priority to each goal and each objective. In addition, enter any actions and/or resources required to achieve each objective. (Click here to see a definition of [goals](#), [objectives](#), [actions](#), and how they work [together](#).)

- **1 - Goal - Engage students in meaningful learning.**

To incorporate practices and educational structures and facilities that will provide students with the opportunity to be engaged and participate fully in meaningful and purposeful learning experiences.

Priority Rank:

1

**Objectives:**

- **1.1 - Objective - Increase the number of students served by full-time faculty members as measured by an increase to the full-time to part-time faculty ratio.**

Priority Rank:

1

Start Date:

10/15/2012

End Date:

07/01/2021

Responsible Person:

All full-time faculty

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

**Resource Requests:**

- **1.1.r1 - Hiring faculty.**

**Description**

Hire at least two full time math faculty.

**Rationale**

The full-time to part-time for mathematics is very low which is not in best interest of the students.

Resource Type:

Ongoing

Expenditure Category:

Contract Classroom Inst. (1100)

First Year Cost/Savings:

\$160,000.00/\$0.00

Second Year Cost/Savings:

\$160,000.00/\$0.00

Third Year Cost/Savings:

\$160,000.00/\$0.00

**Actions/Activities:**

- **1.1.a1 - Hire additional full-time faculty.**

To provide our students with the best possible resources to succeed in their mathematics curriculum, there is a need to have a more robust full-time faculty ratio. Our part-time faculty are hard working individuals but are usually working at several different colleges, hence they cannot devote a lot of time to our campus' needs. We need more full-time faculty that can devote their time to this campus and our students.

Start Date:

10/15/2012

End Date:

07/01/2021

Responsible Person:

Department Chair and Dean

○ **1.2 - Objective - To provide balanced schedule offerings for all courses.**

To provide all students with a wide variety of course offerings and times; evenly distributed throughout the morning, afternoon and evening. If the department is to have a balanced schedule of offerings and be able to increase the number of sections offered then the department must have dedicated classrooms appropriate to mathematics instruction.

Priority Rank:

5

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and Dean

Strategic Direction:

4. Expand Access

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

**Resource Requests:**

▪ **1.2.r1 - Increase the number of course offerings.**

**Description**

Increase the number of section offerings: 6 per year.

**Rationale**

Math is the gate keeper for most degrees on campus and is a prerequisite or departmental recommendation for many programs and courses at Crafton Hills College.

Resource Type:

Ongoing

Expenditure Category:

Instructors Day/Hourly (1300)

First Year Cost/Savings:

\$37,730.00/\$0.00

Second Year Cost/Savings:

\$37,730.00/\$0.00

Third Year Cost/Savings:

\$37,730.00/\$0.00

**Actions/Activities:**

- **1.2.a1 - To increase the number of course offerings.**

Campus needs to grow and the math department can help attain that goal.

Start Date:

10/15/2012

End Date:

12/15/2021

Responsible Person:

Department Chair and Dean

- **1.2.a2 - To obtain priority scheduling in additional rooms.**

To obtain priority scheduling in additional rooms in order to increase the number of sections offered.

Start Date:

11/15/2014

End Date:

08/15/2025

Responsible Person:

Dept. Chair and Dean

- **1.3 - Objective - To provide excellence in teaching focusing on the classroom setting.**

To provide excellence in teaching by implementing a variety of best practices in the teaching of mathematics in order to reach all student learning styles.

Priority Rank:

3

Start Date:

10/15/2012

End Date:

12/15/2021

Responsible Person:

Mathematics Faculty

Strategic Direction:

1. Promote Student Success

Impact Type:

Department

Institutional Learning Outcome:

Not Applicable

**Resource Requests:**

- **1.3.r1 - Support conference attendance of mathematics faculty.**

**Description**

**Rationale**

To improve mathematics instruction and increase student success.

Resource Type:

Ongoing  
Expenditure Category:  
Conference and Travel (5200)  
First Year Cost/Savings:  
\$5,000.00/\$0.00  
Second Year Cost/Savings:  
\$5,000.00/\$0.00  
Third Year Cost/Savings:  
\$5,000.00/\$0.00

**Actions/Activities:**

- **1.3.a1 - Identify and research best practices.**  
Obtain and share amongst the full-time and part-time faculty information on best practices on an ongoing and regular basis.  
Start Date:  
10/15/2012  
End Date:  
11/15/2021  
Responsible Person:  
Mathematics Faculty
- **1.3.a2 - Devote parts of department meetings to share new teaching strategies.**  
Ongoing departmental discussions.  
Start Date:  
10/15/2012  
End Date:  
11/15/2021  
Responsible Person:  
Mathematics Faculty
- **1.3.a3 - Promote conference attendance.**  
We want to have the ability to attend conferences that relate to the teaching of mathematics to improve student success.  
Start Date:  
10/29/2012  
End Date:  
12/29/2021  
Responsible Person:  
Mathematics Faculty
- **1.4 - Objective - To improve the quality of the learning environment for teaching mathematics with appropriately designed classrooms.**  
To obtain classrooms, furniture and technology that are appropriate for best practices in the teaching mathematics .  
Priority Rank:  
2  
Start Date:  
10/15/2012  
End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and Dean

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

**Actions/Activities:**

▪ **1.4.a1 - Obtain wireless capable projectors.**

Install a permanent mounted wireless data projector in all classrooms used by the mathematics department. NORTH 101, 102 , CHL 202 and CNTL have been done.

Start Date:

11/15/2010

End Date:

03/15/2021

Responsible Person:

Department Chair and Dean

▪ **1.4.a2 - Improve furniture for technology in additional classrooms.**

To obtain computer lab furniture that supports computers with fold down monitors so that computers can be stored while not in use.

Start Date:

10/15/2010

End Date:

05/31/2021

Responsible Person:

Department Chair and Dean

▪ **1.4.a3 - To have sufficient custodial support.**

Due to shortage of custodial staff, classroom maintenance has been compromised and inappropriately maintained to ensure a proper learning environment. With additional custodial support this could be alleviated.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Director, facilities and operations

▪ **1.4.a4 - Obtain Document Projectors.**

Obtain document projectors for all classrooms used by the mathematics department.

Start Date:

10/15/2012

End Date:



11/15/2021

Responsible Person:

All mathematics faculty.

- **1.4.a5 - Reorienting NRTH 101 and 102.**

To reorient the NRTH classrooms.

Start Date:

10/15/2012

End Date:

05/31/2021

Responsible Person:

Department Chair and Dean

- **1.5 - Objective - To increase the success of mathematics students through virtualization using PC/Tablets, iPads, or notebooks in classrooms.**

To provide support to mathematics students through virtualization using PC/Tablets or Pads in classrooms or have more dedicated rooms with hardwired/stationary computers.

Priority Rank:

6

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Department Chair and Dean

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

**Resource Requests:**

- **1.5.r1 - Obtain PC Tablets for faculty.**

**Description**

Obtain high quality tablets or notebooks for faculty use in classrooms such as Surface Pro or Surface Notebook.

**Rationale**

To improve active learning in the classroom and to capture lecture notes for posting on a web based site such as Blackboard.

Resource Type:

Ongoing

Expenditure Category:

Instructional Supplies (4300)

First Year Cost/Savings:

\$15,000.00/\$0.00

**Actions/Activities:**

- **1.5.a1 - Meet with IT department.**

Meeting with IT to determine feasibility.

Start Date:

03/16/2012

End Date:

05/31/2021

Responsible Person:

All mathematics faculty

- **1.5.a2 - Obtain PC tablets.**

To capture lecture notes and virtual office hours, which can be made available to mathematics students.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Department Chair and Dean

- **1.5.a3 - Obtain wireless capability for permanently mounted projectors.**

Start Date:

03/16/2012

End Date:

11/15/2021

Responsible Person:

Dean and Mathematics Faculty

- **1.5.a4 - Mathematics Software (Matlab)**

The math students need access to appropriate software to address diverse learning styles and teaching modalities. Software such as: Green Globes, Geogebra, Geometers sketchpad. For the higher courses such as Math 255, software such as Matlab or Mathematica.

Start Date:

12/01/2016

End Date:

12/01/2021

Responsible Person:

All Mathematics Faculty

- **1.6 - Objective - To increase math student success by working in collaboration with the tutoring center.**

Priority Rank:

9

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Department Chair

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

**Actions/Activities:**

- **1.6.a1 - Advocate for hiring mathematics tutors.**

There is a need for peer tutors to help with the support labs that we currently have for some of our classes. As the Math Department hopes to move toward, having more lab supported classes it is essential to staff the computer labs with tutors that are trained to use the software and help the instructors.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Tutoring Center Coordinator

- **1.6.a2 - Encourage math faculty to recommend good students to apply to be tutors.**

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty

- **1.6.a3 - Encourage faculty to send more students to the tutoring center.**

In order to help students to be more successful, the faculty need to encourage students to make better use of the tutoring center.

Start Date:

10/15/2012

End Date:

12/15/2021

Responsible Person:

Mathematics Faculty

- **1.6.a4 - Increase faculty involvement with the Math component of the Tutoring Center**

Encourage full-time faculty to hold office hours in the tutoring center and encourage part-time faculty to use their professional development for student contact in the tutoring center. This could include faculty involvement in offering diverse workshops through the tutoring center.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:  
Department Chair and Dean

- **1.6.a5 - Obtain tutors for Saturday tutoring.**

Explore ways to involve the tutoring center to provide staffing for Saturday tutoring.

Start Date:  
10/15/2012

End Date:  
11/15/2021

Responsible Person:  
Tutoring Center Mathematics Coordinator

- **1.7 - Objective - Expand the current math program and course offerings to better meet student needs and demand.**

Priority Rank:  
10

Start Date:  
10/15/2012

End Date:  
11/15/2021

Responsible Person:  
All Full-Time Mathematics Faculty

Strategic Direction:  
1. Promote Student Success

Impact Type:  
Only Students

Institutional Learning Outcome:  
Not Applicable

**Resource Requests:**

- **1.7.r1 - Multiple Measures**

**Description**

**Rationale**

Travel, stipends, reassigned time or something of this nature so as to explore multiple measures at other colleges.

Resource Type:

Ongoing

Expenditure Category:

Reassigned Time (1102)

First Year Cost/Savings:

\$7,000.00/\$0.00

Second Year Cost/Savings:

\$3,000.00/\$0.00

- **1.7.r2 - Participate in mathematics faculty retreat**

**Description**

The math department including full-time and part-time faculty need dedicated time to analyze the current curriculum from start to finish and

make changes as needed, including alternative paths to GE transfer courses.

**Rationale**

Increase student success. There could be long term savings involved as students move throughout the math sequence more efficiently.

Resource Type:

One-time

Expenditure Category:

Substitutes Day/Hourly (1301)

First Year Cost/Savings:

\$4,500.00/\$0.00

**Actions/Activities:**

- **1.7.a1 - Multiple Measures**

With the new multiple measures placement models many students will need additional support for the gaps in their knowledge of mathematics.

The department should explore models at other colleges to determine what is the best pathway to increase students success.

Start Date:

12/01/2016

End Date:

12/01/2021

Responsible Person:

Mathematics Department

- **1.7.a2 - Participate in mathematics faculty retreat**

Hold retreats to work on modifications due to multiple measures, SLO cycle, and new math pathway.

Continue to work on common assessment and eligibility rules for courses.

Start Date:

10/15/2012

End Date:

12/01/2021

Responsible Person:

Mathematics Faculty

- **2 - Goal - Continue to engage in evidence-based decision making.**

To obtain current data and analyze it so that we can better serve our students. Our main goal is to analyze retention and success data. However, we need also to obtain/analyze data on the viability of our fast track classes.

Priority Rank:

3

**Objectives:**

- **2.1 - Objective - To improve student success in mathematics courses by participating in multiple measures and the acceleration project.**

Continue to meet with the research department with respect to multiple measures eligibility rules and alternative accelerated pathways.

Priority Rank:

4

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and OIERP

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

- **2.2 - Objective - Increase student success by gathering information on, and implementing best practices for, the teaching of mathematics.**

Collect data on effectiveness on Best Practices.

Priority Rank:

7

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

All Full-Time Mathematics Faculty

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

**Actions/Activities:**

- **2.2.a1 - Research math class impact on student self efficacy.**

Obtain data on how CHC math classes impact students' self efficacy.

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty

- **2.3 - Objective - Obtain data on how Crafton Hills College mathematics classes impact students' self efficacy.**

Obtain data on how CHC math classes affect the students self confidence in math; self efficacy, motivation and persistence.

Priority Rank:

11

Start Date:

10/15/2012

End Date:

12/15/2021

Responsible Person:

All mathematics faculty

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

**Actions/Activities:**

- **2.3.a1 - Analyze Data**

Ongoing activity. Data will have to be analyzed to address department SLO's

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and OIERP

- **2.4 - Objective - Increase student success by investigating the factors influencing student persistence through the math sequence.**

Priority Rank:

8

Start Date:

10/15/2012

End Date:

11/15/2021

Responsible Person:

Mathematics Faculty and OIERP

Strategic Direction:

1. Promote Student Success

Impact Type:

Only Students

Institutional Learning Outcome:

Not Applicable

**Actions/Activities:**

- **2.4.a1 - Data mining.**

The department would like data on student success based on their grade in the previous math course. Modifications to grading procedures will be discussed.

Start Date:

10/15/2015

End Date:

11/15/2021

Responsible Person:  
Mathematics Faculty and OIERP

▪ **2.4.a2 - Explore intervention to increase persistence in the mathematics sequence.**

Modify and implement survey on why students do not have persistence to the next level of mathematics. The results of this survey will then be used for training workshops with all math faculty to help find ways to increase student persistence.

Start Date:  
10/15/2012

End Date:  
11/15/2021

Responsible Person:  
Mathematics Faculty and OIERP

## 11. Comments

This space is provided for participants and managers to make additional comments. Comments are not required.

**There are no comments for this plan.**

## 12. Supporting Documents

This question is for attaching supplemental materials. Supporting documents are not required.

- [All Math SLO's revised 8-15-2016.doc](#)
- [PPR Copy of Math Scheduling Matrix 2016-2019.xlsx](#)
- [PPR Table 6\\_WSCH\\_FTEF Ratio \(Rubric Item 6.a.pdf](#)
- [Course Completion Rate - Program Review.pdf](#)
- [PPR Table 7\\_Fill Rate with LAM\(Rubric Item 6.a.v.pdf](#)
- [PPR Table 7\\_Fill Rate with MERIS\(Rubric Item 6.a.v.pdf](#)
- [Course Success Rate all courses - Program Review.pdf](#)
- [PPR Table 5\\_75\\_25 Ratio \(Rubric Item 6.a.pdf](#)