Leeward Community College
Comprehensive Review and Evaluation

Program Name: Remedial/Developmental and Co-Requsite Mathematics

Assessment Period: August 2015 to July 2019

College Mission:
At Leeward Community College, we work together to nurture and inspire all students. We help them attain their goals through high-quality liberal arts and career and technical education. We foster students to become responsible global citizens locally, nationally, and internationally. We advance the educational goals of all students with a special commitment to Native Hawaiians.

Program Mission:
The Leeward CC First-Year Success: The Remedial/Developmental and Co-Requisite Mathematics Program supports students in attaining their educational goals by offering high-quality developmental and introductory college-level mathematics courses.

Part I. Executive Summary of Program Status
The Reduction in Time-to-Degree from the UHCC Strategic Directions 2015-2021 guides our remedial/developmental and co-requisite math program.

UHCC Strategic Directions 2015-2021:
Accelerating College Readiness Metrics
- 75% of students testing at one level below college-ready standards will complete their college-level English and/or math course within one semester.
- 70% of students testing at two or more levels below college-ready standards will complete their college-level English or math course within one year.

The targets set in AY 2016-2017 for successful completion at all levels were 25%-50%. Leeward met those benchmarks at both the one level and two levels below college-level math placement. However, the targets for AY 2017-2018 (60% of students placed at one level below will complete a college level math course within one semester and 55% of students placed at two or more levels below college level will complete a college level course within one year) and AY 2018-2019 (65% of students placed at one level below will complete a college level math course within one year) were not met.
within one semester and 60% of students placed at two or more levels below will complete a college level course within one year) were not met.

In Fall 2016, as part of the Acceleration Initiative, Leeward fully implemented companion courses where students who placed one level below college level enroll in a co-requisite course concurrently with an entry level college math course. For students who placed two or more levels below college level, a non-STEM course was created and the existing STEM course was revised and modified.

The percentage of students completing a college level math course has been fluctuating over the past three years. For students who placed one level below college level, there was an increase of 3 percentage points from 50% to 53% in AY 2018 and then a 4 percentage point decrease from 53% to 49% in AY 2019. For students who placed two levels below college level, the percentage change was opposite. There was a 6 percentage point decrease from 45% to 39% in AY 2017-2018 and an increase of 5 percentage points from 39% to 44% in AY 2018-2019.

Within the past three years, an average of approximately 51% of students who placed one level below college level completed a college level math course in one semester and approximately 43% of students who placed two levels below college level completed a college level math course within one year.

More discussion about the UHCC Strategic Directions and course completion rates are addressed in Part III. Analysis of Program Data.

Part II. Program Description

Program Description

The Leeward CC First-Year Success: The Mathematics program offers content courses covering developmental algebra, quantitative methods, introductory college-level mathematics, and co-requisite companion courses that provide just-in-time support for introductory college-level mathematics courses. These courses are designed to align with credential pathways and to accelerate students to meeting their respective program’s quantitative reasoning requirement.

History

For many years, the legacy lecture remedial/developmental math course sequence was four 3-credit, semester-long courses (MATH 1B, MATH 22, MATH 24, and MATH 25). From Fall 2007 to Spring 2010, MATH 24 and MATH 25 evolved and was re-numbered to MATH 73 and MATH 83, respectively because of slight content differences from the other UHCC campuses.

As a result of the Student Success Initiative Goal to decrease time spent in remedial/developmental courses to one year or less, in Fall 2010, the Emporium Model was fully implemented. This was done by creating 3 courses (MATH 9 – Whole Number Skills, 1 credit,
part-of-term; MATH 22 – Pre-Algebra, 3 credits; and MATH 82 – Accelerated Algebraic Foundations, 4 credits). The Emporium Model shortened the pipeline from four courses to three courses below college level math. In Fall 2013, the pipeline was shortened further to two levels below college level math. Students who placed into MATH 9 would enroll in MATH 16, which is a study skills math course taken concurrently with MATH 22 to accelerate students into college level math courses.

To improve the remedial/developmental math program’s outcomes and as part of the Developmental Education Acceleration Initiative, two pathways (STEM and non-STEM) were developed in Fall 2016. In both pathways, there is only one remedial/developmental math course below college level for students who place two or more levels below college level (MATH 75 - Introduction to Mathematical Reasoning, 3 credits; and MATH 82 - Algebraic Foundations, 4 credits). For students who place one level below college level, co-requisite companion courses were created (MATH 78 - College Math Companion, 1 credit; and MATH 88 - College Algebra Companion, 2 credits) that provide students with just-in-time support for the entry college level math courses (MATH 100 - Survey of Math, 3 credits; MATH 103 - College Algebra, 3 credits; and MATH 115 - Introduction to Statistics and Probability, 3 credits). Students enroll in the co-requisite course concurrently with the college level math course.

In addition to the Acceleration Initiative pathways, students have been provided with another opportunity to accelerate through the remedial/developmental math courses since Fall 2016. Students who place into MATH 75 (2 levels below college level in the non-STEM pathway) and complete the MATH 75 requirements early in the semester are offered an opportunity to complete MATH 100 in the same semester at no additional cost in textbook, tuition, or fees. Students who take advantage of this opportunity have their registration changed after completing the MATH 100 requirements so there is no risk involved trying to complete MATH 100 in the same semester. From Fall 2016 to Spring 2019, an average of approximately 23% of students who initially enrolled in MATH 75 earned credit for MATH 100 in the same semester by taking advantage of this opportunity.

Program goals/Occupations for which this program prepares students

- To support credential pathways by developing and maintaining courses and course learning outcomes that align with corresponding pathway quantitative reasoning requirements
- To ensure relevancy and promote student success in introductory college-level mathematics courses
- To accelerate college readiness in mathematics through the design and offering of compressed developmental algebra and co-requisite companion courses in lieu of a traditional sequence of remedial mathematics courses

Program Student Learning Outcomes (PLOs)

There are no Program Student Learning Outcomes (PLOs) for the Remedial/Developmental and Co-Requisite Math Program.
Admission requirements
There are no admission requirements for the remedial/developmental math program.

Credentials, licensures offered
There are no credentials or licensures offered as part of the remedial/developmental math program.

Faculty and staff
The mathematics faculty who currently teach the remedial/developmental and entry-level MATH courses are listed below:

- Darci Francis, MATH Instructor
- Jiajia Garcia, MATH Associate Professor
- William Longanecker, MATH Assistant Professor
- Eric Matsuoka, MATH Professor
- Christina Mende, MATH Instructor
- Dianne Minei-Kimoto, MATH Lecturer
- Igor Nikitin, MATH Instructor
- James Ogg, MATH Assistant Professor
- Reina Ojiri, MATH Instructor
- Donnabelle Pascual, MATH Professor
- Huijin Sergi, MATH Instructor
- Emily Uribe, MATH Lecturer
- Jennifer Watada, MATH Professor

Resources
Students in the remedial/developmental and entry-level MATH courses currently utilizes the Math Lab in MS-204 and five computer Emporium classrooms; MS-201, MS-203, MS-210, MS-211, and BS-204. There are approximately 30 desktop computers in each Emporium classroom with the exception of MS-211 having approximately 55 computers. There are also 10 laptops in the Math Lab.

The Math Lab currently receives an annual allocation of $25,000 of G-funds by the Math and Science Division for student help to tutor MATH courses. Acceleration/Co-Requisite/First-Year Initiative funds were allocated to alleviate the strain on the Math Lab budget. Approximately $19,000 in AY 2017 and approximately $29,000 in AY 2018 was spent on student tutors and peer mentors for the Math Lab.

Acceleration/Co-Requisite/First-Year Initiative funds were also allocated to expand the co-requisite and entry-level college math course offerings. To support these courses, more Emporium classrooms were needed. In AY 2018, approximately $86,000 was spent on
repurposing an existing classroom into an Emporium classroom with 30 new desktop computers and appropriate furniture. In AY 2017, upgrades to electrical, equipment, and furniture to existing Emporium classrooms were completed for approximately $131,000.

With the Acceleration Initiative, it is essential for math faculty to be up-to-date in pedagogy, technology, and educational techniques that focus on accelerated learning. As a result, the Acceleration/Co-Requisite/First-Year Initiative provided math faculty with funds to attend conferences to learn details about successful implementations of acceleration and co-requisite courses at other colleges and use their experience to improve Leeward’s success of students completing college-level math in their first year.

Articulation agreements
Math faculty within the UHCC system met and discussed the courses in the STEM (MATH 82/82X and MATH 88) and non-STEM (MATH 75/75X and MATH 78) pathways as part of the Developmental Education Acceleration Initiative. Consensus was reached on August 20, 2015 among math representatives to offer the STEM and non-STEM courses in redesigned, lab-style format or lecture format starting Fall 2016. Consensus was also reached on the course title, course description, student learning outcomes, content, and depth of coverage of these STEM and non-STEM courses.

Community connections, advisory committees, internships, Coops, DOE connections
The University of Hawaii Community Colleges have been working with the Hawaii DOE to offer Early College MATH courses. MATH 100 and MATH 103 are offered at local high schools as face-to-face or distance delivery.

In addition, to help place high school students directly into entry-level college math courses without COMPASS or Accuplacer, there is an agreement with the Hawaii DOE on the use of results from assessments or coursework. These include scores from Smarter Balanced Math Achievement Level, 12th Grade Intro to College Math Class, Cumulative HS GPA, Math Placement Alg I and II Grade, ACT Math, SAT Math, HiSET Mathematics, and GED Mathematical Reasoning.

Distance delivered/off campus programs, if applicable
The following entry-level MATH courses were offered as a distance delivery course in AY 2015-2019:

- MATH 100 (Survey of Mathematics), 3 credits
- MATH 115 (Introduction to Statistics & Probability), 3 credits
Part III. Analysis of Program Data

Demand

The fall headcount for the college at census has decreased by 11 percentage points over four years: 7,535 in 2015, 7,262 in 2016, 6,805 in 2018, 6,709 in 2019. The fall headcount for new students attempting math in their first year increased by 9% (2 students) from Fall 2016 to Fall 2017 and decreased by 4% (37 students) from Fall 2017 to Fall 2018.

Despite having an average of 4 seats open for each remedial/developmental and co-requisite math course on the first day of instruction in Fall 2018, students did not enroll in a math course their first year. This decline may be due to some students being unsure of their educational goals and therefore are reluctant to choose a math pathway their first year.

Efficiency

The number of low-enrolled classes have been fluctuating over the past four years from seven (AY 2016) to five (2016-2018) and eleven (AY 2019). These low-enrolled classes were co-requisite math courses offered at the Waianae Moku campus for students who placed one level below college level. Despite their low enrollment, these classes were offered to promote UHCC and Leeward CC Strategic Directions outcomes.

Effectiveness:

UHCC Strategic Directions:

These are the goals set in the 2015-2021 UHCC Strategic Directions Reduction in Time-to-Degree metrics:

- 75% of students testing at one level below college-ready standards will complete their college-level English and/or math course within one semester.
- 70% of students testing at two or more levels below college-ready standards will complete their college-level English or math course within one year.

For the current year (2018-2019) these benchmarks were set to guide campuses towards meeting the UHCC Strategic Directions goals:

- 65% of students testing at one level below college-ready standards will complete their college-level English and/or math for course within one semester.
- 60% of students testing at two or more levels below college-ready standards will complete their college-level English or math course within one year.

As previously mentioned in Part I. Executive Summary of Program Status, the targets set in AY 2016-2017 for successful completion at all levels were met while the targets set in AY 2017-2018 and AY 2018-2019 were not met. However, the percentage of students completing a college level math course increased from 59% (AY 2018) to 66% (AY 2019) for students who placed in a college level math course and 39% (AY 2018) to 44% (AY 2019) for students who placed two or more levels below college level. There was a 4 percentage point decrease from 53% to 49% for students placed one level below college level completing a college level math
course in one semester. Students who had no placement and completed a college level math course increased by 15 percentage points. Course completion rates indicate where we need to focus attention.

According to the ARPD data, the successful completion rate for MATH 75 decreased by 4 percentage points from 48% (AY 2017 and AY 2018) to 44% (AY 2019). However, the MATH 75 completion rate does not reflect the number of students who initially enrolled in MATH 75 and had their registration changed to MATH 100 after completing both courses in the same semester. Since Fall 2016, students who placed in MATH 75 (2 levels below college-level in the non-STEM pathway) and completed the MATH 75 requirements early in the semester are offered an opportunity to complete MATH 100 in the same semester at no additional cost in textbook, tuition, or fees. Students who take advantage of this opportunity have their registration changed after completing the MATH 100 requirements so there is no risk involved trying to complete MATH 100 in the same semester.

Leeward’s OPPA office ran data for the actual number of students who enrolled and successfully completed MATH 75. The percentage of students who completed MATH 75 is 73% in AY 2017, 68% in AY 2018, and 65% in AY 2019. This data also alters the success rate for students successfully completing MATH 100. The percentage of students who completed MATH 100 is 74% in AY 2017, 73% in AY 2018, and 73% in AY 2019.

To increase success and accelerate students into a college-level course, a 3 credit MATH 78B co-requisite companion course was created for designated college level non-STEM courses effective Fall 2019. Students who would have ordinarily enrolled in MATH 75 will enroll in MATH 78B concurrently with a college level math course in the same semester so that they can complete their college level math course in one semester rather than two.

The completion rate for both MATH 103 and MATH 115 increased by 6 percentage points from 56% and 57% (AY 2018) to 62% and 63% (AY 2019), respectively. The MATH 78 co-requisite course to MATH 100 and MATH 115 had a 9% increase from 74% (AY 2017) to 83% (AY 2019). The standalone MATH 115 and MATH 115 with MATH 78 co-requisite companion course was previously taught as a lecture course. Since the Emporium Model has seen some success, in Fall 2018, both courses started using the Emporium Model, which may have attributed to the rise in success rates.

The steady increase in completion rates for the standalone MATH 103 from 53% in AY 2017 to 62% in AY 2019 could be associated with switching the math software program in Fall 2017. MATH 103 with co-requisite MATH 88 uses the ALEKS instructional program, which incorporates remediation topics while the standalone MATH 103 used the MyMathLab program. Although both courses have comparable course content and requirements, the ALEKS program seemed to be more student-friendly.
Over the three year period, the successful completion rates for MATH 82 decreased by 7 percentage points from 56% in AY 2017 to 49% in AY 2019. Since, there is no pre-requisite course below MATH 82 in the STEM pathway, remedial/developmental math students who did not meet the MATH 82 placement measures were given overrides into the course and were allowed to enroll. These students signed a pre-requisite exception form indicating the amount of time that they would need to spend on course material to have a reasonable chance at passing MATH 82. As a result, students were enrolling in at least one level above their legacy placement which may have caused the decrease in success rates.

To help increase student success, MATH 82 was modified to MATH 82X, and the number of credit and instructor contact hours was increased effective Fall 2019. The extra scheduled class time that students have with their instructor should improve completion rates.

The completion rate for MATH 88 has remained above 70%, however, it decreased by 11 percentage points from AY 2017 to AY 2019. Some of this decline could be attributed to the increase in the number of math faculty teaching the course. In AY 2016-2017, only three math faculty taught MATH 103 with MATH 88 co-requisite while in AY 2017-2018, the number of math faculty doubled to six due to the high demand of the course.

**Part IV. Analysis of Program Student Learning Outcomes**

There are no Program Student Learning Outcomes (PLOs) for the Remedial/Developmental and Co-Requisite Math Program. More discussion on student learning outcomes is in Part VII. Overview Analysis of Program - Evidence of student learning section.

**Part V. Curriculum Revision and Review**

All currently offered remedial/developmental, co-requisite, and entry-level college math courses have been revised or reviewed within the past five years. MATH 78, MATH 88, MATH 82X (formerly MATH 82), MATH 100, MATH 103, and MATH 115 have been reviewed in 2018-2019.

**Part VI. Survey Results**

The Remedial/Developmental and Co-Requisite Math Program has no survey results to report.

**Part VII. Overview Analysis of Program**

Alignment with mission
As part of the Acceleration Initiative, Leeward fully implemented the STEM and non-STEM pathways and co-requisite learning communities in Fall 2016 which enables students to complete
a college level math course within one year or less and provides them with a more direct path towards their degree.

From 2013-2016, an average of 34% of students who placed one level below college level completed a college level math course the next semester. With the implementation of co-requisite learning communities, this increased by 13 percentage points to 51%. There is no prior ARPD data for students who placed two or more levels below college level and completing a college level math course, however, from 2016-2019, an average of approximately 43% of these students successfully completed a college level math course in one year.

In addition, as previously mentioned in Part III. Analysis of Program Data, students who placed two levels below college level on the non-STEM track (MATH 75) and completed the course requirements early in the semester were offered an opportunity to complete MATH 100 in the same semester. As a result, those students were completing a college level math course in one semester rather than one year. Since Fall 2016, approximately 23% (367 out of 1,603) of students who initially enrolled in MATH 75 earned credit for MATH 100 in the same semester.

In these ways, the remedial/developmental and co-requisite math program addresses the College Mission: At Leeward Community College, we work together to nurture and inspire all students. We help them attain their goals through high-quality liberal arts and career and technical education. We foster students to become responsible global citizens locally, nationally, and internationally. We advance the educational goals of all students with a special commitment to Native Hawaiians.

Evidence of quality
To determine the quality of the remedial/developmental and co-requisite math program, the Student Learning Goals were used. The successful completion rates for all co-requisite (MATH 78 and MATH 88) and entry-level college math courses (MATH 100, MATH 103, and MATH 115) have either remained above 70% or increased over the three year period. This shows the value and importance of the program.

Evidence of student learning
Student learning outcomes for each course were used to determine student learning. The remedial/developmental courses (MATH 75 and MATH 82) and co-requisite courses (MATH 78 and MATH 88) were assessed using the agreed upon student learning outcomes from the August 20, 2015 UHCC system math meeting.

Course assessment was completed at least once for all remedial/developmental, co-requisite, and entry level math courses within the past three years. Data was collected from departmental exit exams or online homework assignments. Students were able to demonstrate at least 70% mastery of all learning outcomes in each course. MATH 75, MATH 78, MATH 82, and MATH 88 have been assessed in 2016-17, 2017-18, and 2018-19. MATH 100, MATH 103, and MATH
115 were assessed in 2018-19. Below is the percentage of students who demonstrated acceptable mastery of the learning outcomes in 2018-19:

MATH 75
- 76% of students were able to solve applied mathematical problems, judge reasonableness of results, and communicate conclusions using appropriate terminology and symbols.
- 78% of students were able to recognize and express mathematical patterns in various forms and contexts.
- 76% of students were able to select and correctly utilize precise mathematical language and symbols to effectively communicate procedures and results.

MATH 78
- 78% of students were able to demonstrate mathematical reasoning skills needed to successfully complete a companion college math course (currently MATH 100 or MATH 115).

MATH 82
- 81% of students were able to solve equations, inequalities, and systems.
- 86% of students were able to graph linear and quadratic equations.
- 89% of students were able to use algebraic techniques to analyze and solve applied problems.
- 74% of students were able to select and correctly use precise mathematical language and symbols to effectively communicate procedures and results.

MATH 88
- 72% of students were able to demonstrate algebra skills needed to be successful in MATH 103.

MATH 100
- 93% of students were able to mathematically model practical quantitative applications.
- 94% of students were able to analyze the basis for, and the limitations of, quantitative procedures used to solve problems.
- 94% of students were able to appropriately select, then correctly apply, rules and/or algorithms to solve simple and multi-step mathematical problems.
- 70% of students were able to interpret and critically evaluate the reasonableness of proposed solutions to quantitative, theoretical, and/or applied problems.
- 88% of students were able to select and correctly utilize precise mathematical language and symbols to effectively communicate procedures and results.

MATH 103
- 90% of students were able to choose appropriate symbolic mathematical techniques and employ them to solve theoretical and applied problems.
• 72% of students were able to apply quantitative reasoning in context to the results of mathematical operations and procedures.
• 83% of students were able to illustrate, analyze, and deduce properties of formal mathematical models and systems, including functions and graphs.
• 77% of students were able to apply rules and algorithms to compare and analyze the formal representations of functions.
• 72% of students were able to select and correctly utilize precise mathematical language and symbols to effectively communicate procedures and results.
• 75% of students were able to demonstrate persistence in mastering course content and solving problems at course-appropriate levels of complexity.

MATH 115
• 83% of students were able to Correctly Classify data and variables.
• 100% of students were able to Create and Interpret various graphs.
• 81% of students were able to Calculate and interpret one and two variable descriptive statistics.
• 100% of students were able to Calculate and interpret probabilities for an even in a probability experiment.
• 75% of students were able to Construct and interpret point and interval estimates.
• 90% of students were able to Perform and interpret the results of statistical hypothesis tests.

Resource sufficiency
The resources supporting the remedial/developmental, co-requisite, and entry-level math courses are insufficient. Although Acceleration/Co-Requisite/First-Year Initiative funds were allocated to the Math Lab and to purchase essential equipment, these funds are unlikely to be sustained.

The Math Lab has been using Acceleration/Co-Requisite/First-Year Initiative funds to alleviate the strain on the Math Lab budget. The Math Lab is currently allocated $25,000 of G-funds by the Math and Science Division, which has not been adjusted for many years even though student-help wages have increased. The remedial/developmental, co-requisite, and entry-level math STEM and non-STEM pathways generally place students one or more levels above their current placement. Such students are expected to ask questions that are greater in both number and complexity so math tutors and peer mentors allow students to receive answers and progress in the course material more efficiently. To ensure that the Math Lab continues to property support students, there is a need of $40,000 allocated G-funds. The number of students receiving assistance or using the Math Learning Center shows that this service must be supported.

Fall 2015: 3,717
Spring 2016: 4,255
Fall 2016: 1,675
Spring 2017: 1,630
Fall 2017: 1,995
Spring 2018: 1,718
Fall 2018: 2,260
Spring 2019: 1,558

There are currently five Emporium classrooms with a total of 175 desktop computers that support over 1,600 students who enroll in remedial/developmental, co-requisite, and entry-level math courses each year. All of these courses except one (MATH 111 - Math for Elementary Teachers I) are taught using the Emporium Model. The Emporium Model replaces lectures with self-directed learning featuring interactive computer software and on-demand personalized assistance. This provides students with just-in-time remediation, which is essential to co-requisite learning community courses. Computers are essential for student success and to accelerate college readiness in one semester. Funding will need to be allocated when these computers need upgrading.

Summary of key findings and conclusions
The remedial/developmental, co-requisite, and entry-level college math courses have seen some increase in successful completion rates, however, the UHCC Strategic Direction targets were still not met in AY 2017-2018 and AY 2018-2019. Strategies (discussed below) have been implemented to increase the percentage of students who place one level or two levels below college level to complete a college level math course in one semester or one year.

Recommendations for improving outcomes
To improve the remedial/developmental and co-requisite math program’s outcomes and accelerate students’ completion of a college level math course, we developed another co-requisite course (MATH 78B) and modified an existing course (MATH 82) that were both fully implemented in Fall 2019. These courses should help Leeward approach the UHCC Strategic Directions.

For students who place two levels below college level on the non-STEM track, a new co-requisite course MATH 78B was created and is currently being offered. This course enables students to enroll in MATH 78B concurrently with MATH 100, MATH 111, or MATH 115 so they are able to complete a college level math course within one semester rather than two.

The successful completion rate for MATH 82 has remained below 60% since its inception. As a result, MATH 82 (4 credits) which is two levels below college level on the STEM track was changed to MATH 82X (5 credits) effective Fall 2019. The extra scheduled class time that students have with their instructor should increase completion rates.
Part VIII. Action Plan

Results of the 2018 Action Plan

Four items were addressed in our Action Plan.

1) Created non-STEM MATH 78B co-requisite course: To increase success and accelerate students into a college-level course, a 3 credit MATH 78B co-requisite companion course was created for MATH 100, MATH 111, and MATH 115. Students who would have ordinarily enrolled in MATH 75 will enroll in MATH 78B along with a college-level math course in the same semester so that they can complete their college-level math course in one semester.

2) Modified existing course: MATH 82 (two or more levels below college level on the STEM track) was changed to MATH 82X to help increase success. The number of credit and instructor contact hours were increased from 4 to 5. The extra hour of instructor-student contact should improve completion rates, enabling students placing two levels below college-level to successfully complete a college-level math course in one year.

3) Math Learning Center: In the past, not enough funds were provided to support the Math Lab budget. In 2018-2019, approximately $20,000 of the Co-Requisite/First-Year Initiative funds were allocated and spent to hire more math tutors and peer mentors. More students have been placed into higher level classes, and they ask more complex questions. The additional tutors and peer mentors and additional hours enabled the lab to help these students so that they could make progress in college math.

4) Support/fund professional development: Funds from the Co-Requisite/First-Year Initiative was allocated to math faculty to attend conferences which will help to increase success in the STEM and non-STEM pathways and co-requisite learning communities. Math faculty attended the Conference on Acceleration in Developmental Education (CADE). One session on “Troubleshooting Common Problems in the Math Classroom” focused on tackling the complications involving student engagement and participation. Faculty learned how to better communicate with students to motivate them into engaging in a productive struggle when dealing with difficult material. Math faculty also attended the International Society for Technology in Education (ISTE) Conference. As a result, the remedial/developmental, co-requisite, and entry level college math courses’ materials are more accessible.

2019 Action Plan

All of the following proposed action plans address the goals of the College and the UHCC strategic plan:

- 2015-2021 Leeward CC Strategic Plan Hawaii Graduation Initiative: Accelerate time to “college-ready” status for students at one or two levels below the college-ready standard.
2015-2021 UHCC Strategic Directions Reduction in Time-to-Degree metrics: 75% of students testing at one level below college-ready standards will complete their college-level English and/or math course within one semester and 70% of students testing at two or more levels below college-ready standards will complete their college-level English or math course within one year.

1) Developmental Math Coordinator: The numerous new and ongoing initiatives require a coordinator to oversee their implementation. Support from faculty, staff, and administrators are crucial to give these projects a chance to succeed. For the level of oversight required, continued release time funding (6 credits per AY to maintain existing initiatives with the possibility of additional release time as required to oversee implementation of new initiatives) is needed.

2) Math Learning Center: The Math Lab is currently underfunded. To ensure that the Math Lab continues to properly support students, there is a need of $40,000 allocated G-funds from the Math and Science Division. The Math Lab is currently allocated $25,000 of G-funds by the Math and Science Division, which has not been adjusted for many years even though student-help wages have increased. Due to budget constraints, the Math Lab had to restrict services and reduced the number of student assistant tutors on duty for the past three years. Consequently, tutors were not readily available to students who needed help. More G-funds must be allocated to the Math Lab to help promote retention and student success in math courses. The number of students receiving assistance or using the Math Learning Center shows that this service must be supported.

   Fall 2018: 2,260
   Spring 2019: 1,558

3) Math Software: Leeward is committed to making accessible documents that will enable students with disabilities to have access to all content. A math software for each math faculty is needed to create accessible materials with mathematical expressions and equations.

4) Successful completion initiatives: Remedial/developmental and entry level college math faculty will discuss best practices to improve success for students in remedial/developmental, co-requisite, and entry level college math courses.

5) Support/fund professional development: With the Acceleration Initiative, which includes the STEM and non-STEM pathways, co-requisite courses, and multiple placement measures, it is essential for math faculty to be up-to-date in pedagogy, technology, and educational techniques that focus on accelerated learning. As a result, attending national or local conferences is crucial. Faculty who attend conferences can learn details about successful implementations of acceleration and co-requisite courses at other colleges and use their experience to improve our success of students completing college-level math in their first year.
Part IX. Resource and Budget Implications

Continued funding of release time for a Developmental Math Coordinator: Estimated annual cost to maintain existing initiatives: 6 credits x $1,923 per credit = $11,538 (plus fringe. Additional release time might be needed depending on involvement in new initiatives.

Allocation of G-funds dedicated to Math Learning Center: $40,000

Math software to create accessible materials: $2,500

Fund professional development: $20,000