Curriculum Details

Course Record ID

641

1. Entry Type

New

2. Justification

The impetus for the Developmental Mathematics curriculum change was an Achieving the Dream initiative that former Vice Chancellor of Student Services Lui Hokoana and the Mathematics department agreed upon. A current Title III grant funded the planning of the Redesign and will be funding the implementation of the project(pilot) in Spring 2012. The goal of the Redesign Project is to promote higher success rate and to shorten the time students spend taking remedial/developmental courses in mathematics without sacrificing student preparedness for college-level (transfer) mathematics coursework. The Mathematics&Business department will be able to offer a two-track developmental mathematics curriculum. Students will have a choice of selecting either the traditional lecture-based sequence of courses or the redesign sequence of courses. The redesign courses allow students to accelerate their learning as quickly as their abilities and motivation will allow them to do so. Allowing students to select the teaching modality that best matches their learning style may lead to better persistence rates and therefore, better success rates.

3. Course Alpha

MATH

4. Course Number

19

5. Course Title (long)

Developmental Mathematics I

6. Course Title Short

Developmental Mathematics I

7. Course Credits

3

8. Course Credit Upper Range

0
Repeatable
Will default to 98

9. Course Description
This course is designed to help student review and master the basics of mathematics. Topics include an introduction to expressions and equations with whole numbers, fractions, decimals, ratios and proportions, percents, and similar triangles.

10. Course Pre-Requisites
Placement into Math 20 or Math 22; "C" or better in Math 20 or equivalent; or consent of instructor.

11. Course Co-Requisites

12. Course Recommended Preparation

13. Contact Hours (lecture, lab, lecture/lab)
3 hours lecture

14. Maximum Credits Towards an AA Degree
0

Grading Options
Will be set to Banner default

15. Department
Mathematics and Business

16. Cross-Listing

17. Course Content
Developmental Mathematics I - Modules #1 to 4 Module #1: Introduction to Expressions and Equations with Whole Numbers a. Identify an exponent and a base b. Use the rules for order of operations c. Evaluate algebraic expressions given values for the variables d. Translate phrases from words to algebraic expressions Module#2: Fractions a. Write mixed numbers as fractions and vice-versa b. Find factors of a number c. Use tests for divisibility d. Find prime factorizations e. Write fractions in lowest terms f. Determine whether two fractions are equivalent g. Multiply fractions and mixed numbers h. Divide fractions and mixed numbers i. Solve application problems using multiplication or division j. Add and subtract fractions and
mixed numbers $k$. Find the least common multiple $l$. Write a fraction with an indicated denominator $m$. Order relations and order of operations Module#3: Decimals $a$. Read and write decimals in words $b$. Write decimals as fractions or mixed numbers $c$. Rounding numbers and estimation $d$. Round decimals to any given place $e$. Add and subtract decimals $f$. Multiply decimals $g$. Divide decimals $h$. Order of operations with decimals $i$. Write fractions as equivalent decimals $j$. Order relations Module#4: Ratios and Proportions, Percent, and Similar Triangles $a$. Write ratios using a fraction, colon or $\text{to}$ $b$. Write proportions $c$. Determine whether proportions are true or false $d$. Solve proportions using cross-products $e$. Solve application problems using proportions $f$. Solve similar triangle problems using proportions $g$. Write percent as decimals and vice-versa $h$. Write percent as fractions and vice-versa $i$. Write percent proportions $j$. Solve percent problems using proportions $k$. Using the percent equation $l$. Solve simple interest problems $m$. Solve compound interest problems

18. Course Competencies

19. Assessments, Tasks, and Grading

Developmental Mathematics I has four modules. Upon completing a appropriate Guided Study Workbook section, a student will take a pre-test for a module. If the student achieves a minimum of 80% of the possible points for the Pre-test, the student may opt to move on to the next module or work on the custom-designed coursework for that module. Upon completing the coursework for a module, the student takes the module's post-test and needs to score a minimum of 80% of the possible points. Once the student has achieved a minimum of 80% of the possible points for each module on either the pre- or post-test, the student takes an Exit Exam for the course and must score a minimum of 70% of the possible points on the course Exit Exam. The course grade for this course will be determined by the following: Homework 15% Module pre- or post-test 50% Course Exit Exam 20% Other-Portfolio(Guided Study, step by step work of MML), Class Participation 15% The letter grade for the course will be assigned according to the level of achievement (based on the total points earned) as provided in the table below: Grade Definition A 90%-100% of total points B 80%-89% of total points C 70%-79% of total points D 60%-69% of total points F Less than 60% of total points

20. Auxiliary Materials and Content


21. Additional Activities outside of class and class time

Students will need to work on a computer with the MyMathLab program outside of class time, either in a computer lab or at home. Plans call for the Math Lab (Manaopono 113) to be equipped with computers (25-30) and staffed with student help and an instructor to provide students the opportunity to continue their course work outside of class time.

22. Special Costs connected to the course

Plans to convert the Math Lab as a drop-in tutoring lab staffed by an instructor and student helpers to the Math Center (a computer classroom) with similar staffing may require the purchase of 25-30 computers including maintenance and replacement costs. The redesign courses will be taught in Manaopono 103, which is a computer classroom. In Fall 2012 the
department anticipates offering three sections of Developmental Mathematics I, three sections of Developmental Mathematics II and 2 sections of Developmental Mathematics III. This will require at least one other computer classroom that is available for the students' outside of class work.

23. What are the Student Learning Outcomes?

The student learning outcomes for the course are: 1) Demonstrate proficiency in the skills and competencies for this level of mathematics. 2) Apply concepts and principles to solve applied problems related to the topics covered in this course. 3) Utilize precise language and symbols in written and oral forms.

24. How does the proposal connect to the college's strategic plan?

1.3 Increase the number of Native Hawaiians that complete developmental reading (from 3 to 31), writing (from 12 to 33) and math (from 29 to 51) classes to between 83% and 86% by 2015. 1.5 Increase by 5% the number of Native Hawaiian students (from 96 to 142) who reenroll in the Spring semester and persist until Fall each year. Develop methods other than surveys to ascertain student satisfaction with AA degree program. Enhance tutoring and mentoring activities. Plan and develop learning communities. Research why high attrition rate exits. Develop an incentive program to improve student persistence. 2.3 Increase the number and percent (to 80%) of students who, if assigned to a developmental intervention, enroll in and successfully complete that sequence and move on to degree applicable instruction and increase CCSSEE Active and Collaborative Learning Benchmark. 2.3 Increase the number of students that complete developmental reading (from 7 to 55), writing (35 to 102), and math (105 to 178) classes by 84% by 2015.

26. Describe the staff that will be needed

Title III will provide funds to hire a temporary half-time instructor to teach the redesign project courses beginning with the pilot of one section each of Developmental Math I, II, and III in Spring 2012. The grant will also fund student help (2 per class). Note: The department is considering having one of its full-time developmental faculty teach the redesign courses for better long-term continuity beyond the life of the grant. The grant money will be used to hire a lecturer to cover the classes of the full time instructor.

26. Describe the facilities that will be needed, including special rooms

Developmental Mathematics I, II, and III need to be taught in a computer classroom. In Spring 2012, the Math Lab will serve as a resource for students to do their outside of class work. Currently, there are four desktop computers and five laptop computers (on loan from Kapiko Center). In Fall 2012, the department anticipates offering three Developmental Mathematics I courses, five Developmental Mathematics II courses and two Developmental Mathematics III courses. The Math Lab will be transformed into the Math Center with 25 - 30 computers to service the high number of students enrolled in these classes.

27. Describe any other resources that will be needed

As mentioned above, the Math Center will need 25-30 computers. A printer as well as a maintenance and replacement plan for the equipment may also be needed.

28. How will the staff, facilities, and other resources for the course be secured?

A current Title III grant (3.5 years of funding after the Spring 2012 pilot) will fund a
Signatures to New (draft) Math19:

**Requested by:** Clayeck Altch

**Departmental Review by:**
- Member: Peggy Regent 8/31/2011
- Member: Wei-Ling Landers 8/31/2011
- Member: T. Y. Y. Lee 8/31/2011
- Member: Deborah 8/31/2011
- Chair: Clayeck Altch 8/31/2011

Was the proposal discussed in a department meeting?  Yes

**Division Dean:** Jan Liben 4/30/04

**IEC (for SLOs):** Jan Liben 08/06/04

**Approved by:**
- Curriculum Committee Chair: Kathleen French 9/20/04
- Faculty Senate Chairperson: Ross Langston 9/20/04
- Vice-Chancellor for Academic Affairs: Richard Fulton 9/12/11
- Chancellor: Doug Dykstra 9/27/11