Curriculum Details

Course Record ID
640

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
28

5. Course Title (long)
Developmental Mathematics II

6. Course Title Short
Developmental Mathematics II

7. Course Credits
3

8. Course Credit Upper Range
0
Repeatable
Will default to 98

9. Course Description
This course is a continuation of Developmental Mathematics I and a preparation for students to take Math 100, Math 101 or Philosophy 110 to fulfill the Symbolic Reasoning requirement. Topics include an introduction to Real numbers (including basic roots, signed numbers and properties) and algebraic expressions (including geometric formulas), linear equations and inequalities in one variable, linear equations and inequalities in two variables, and selected topics - Quadratic Formula, parabola, systems of equations and inequalities, scientific notation, and variation.

10. Course Pre-Requisites
Placement into Math 24 or 25; "C" or better in Developmental Mathematics I or Math 22 or 24; 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 II ♦ Modules #5-8 Module#5: Introduction to Real Numbers (including basic roots, signed numbers and properties) and Algebraic Expressions (including Geometric formulas) a. Classify numbers and graph them on a number line b. Order relations c. Find the opposite and absolute value of real numbers d. Add real numbers e. Subtract real
numbers f. Multiply and divide real numbers g. Properties of real numbers h. Simplifying expressions i. Find the perimeter and area of polygons (rectangle, square, parallelogram, trapezoid and triangles) and composite figures j. Find circumference and area of circles k. Find volume and surface area l. Square roots and the Pythagorean Theorem Module #6: Linear Equations and Inequalities in One Variable a. Addition Property of Equality and applications b. Multiplication Property of Equality and applications c. More on Solving Linear Equations d. Applications of Linear Equations e. Formulas and Additional Applications from Geometry f. Solving Linear Inequalities Module #7: Linear Equations and Inequalities in two Variables a. Interpret graphs b. Write a solution as an ordered pair c. Decide whether a given ordered pair is solution of a given equation d. Complete ordered pairs and/or a table of values for a given equation e. Plot ordered pairs f. Graph linear equations in two variables g. Slope of a line h. Equations of lines i. Graph linear inequalities in two variables Module #8: Selected Topics - Quadratic Formula, Parabola, Systems of Equations and Inequalities, Scientific Notation, and Variation a. Scientific notation and applications b. Solving system of equations by graphing c. Solve system of equations by substitution d. Solve system of equations by elimination e. Application of Linear Systems f. Solving system of linear inequalities g. Solving quadratic equations by the Quadratic Formula h. Graphing Quadratics equations ♦ Parabola i. Variation

18. Course Competencies

19. Assessments, Tasks, and Grading

Developmental Mathematics II has four modules. Students continuing directly from Developmental Mathematics I with no breaks begin working on the first module of this course. All other students must begin by taking the pre-requisite skills test and achieve a minimum score of 80% or better before they begin working on the 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.

25. 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 program for the equipment will 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 temporary part-time instructor and student help (2 per class). At this time, the department is unsure about the source of funding for the 25-30 computers and its related expenses for the Math Center.

29. Certificates

30. Connection to the AA degree

31. Connection between the Course SLOs and the College's General Education Outcomes

Draw on knowledge from the liberal arts to succeed in upper division courses.

Use research and technology skills to access information from multiple sources; use critical thinking and problem-solving skills to evaluate and synthesize information to form conclusions, ideas, and opinions.

Develop skills that improve personal well-being and enhance professional potential.

Pursue lifelong learning.

32. List any similar classes taught at outside of the UH system

33. List any similar classes taught at campuses in the UH System.

34. How, if at all, is the course intended to count in lieu of a course taught at a four-year campus.

35. How, if at all, is the course similar to upper-division courses in the UH System.

36. How does the course articulate with four-year programs (Gen Ed)?
37. List any articulations between this course and any four-year program.

38. Notes

End of Proposal
## Signatures to New (draft) Math

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<td>Claybuck Abraham</td>
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<td><strong>Departmental Review by:</strong></td>
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<td>June Jules</td>
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<td>Donna Miller</td>
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<td>Claybuck Abraham</td>
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<td>Richard Jalen</td>
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<td>IEC (for SLOs)</td>
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<td>Jan Lubin</td>
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<td>Curriculum Committee Chair:</td>
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<td>Kathleen French</td>
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<td>Ross Langston</td>
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<td>Vice-Chancellor for Academic Affairs</td>
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