University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course

1. Type of Action
   - A. Addition □ Regular or □ Experimental or □ Other (click and type to specify)
   - B. Deletion
   - C. Modification: □ in credits □ in title □ in number or alpha or
     in prerequisites or co-requisites □ Other Catalog Description (click to specify)

2. New Alpha, Number and Title
   MATH 135 - Pre-Calculus: Elementary Functions
   3. Credits 3 credits

4. Old Alpha, Number and Title
   MATH 135 - Pre-Calculus: Elementary Functions
   5. Credits 4 credits

6. New Catalog Description
   An analysis of elementary functions. A study of polynomial, rational, exponential and logarithmic functions. Topics also include graphing techniques, transformations, applications, and related topics. Emphasis is placed on topics which will prove useful to students planning to take calculus and also to those who are interested in pursuing math-related careers.

7. Select box and type specific information in text box.
   - Prerequisites □ Corequisites or
   - Recommended Preparation
   "C" or better in MATH 103, MATH 27 or equivalent, satisfactory math placement test score, or consent of instructor.

8. Student Contact Hours Per Week
   Lecture 3
   Lecture/Lab 3
   Lab
   Other (click to specify)

9. Proposed Date of First Offering
   Semester Fall
   Year 2008

10. This course □ is proposed for the Liberal Arts Program Program. □ can fulfill Math or Logical Thinking
    If Other, specify

11. This course Makes No Difference in the number of credits required for the program/core.

12. Equivalent or similar courses offered in the UH System:

<table>
<thead>
<tr>
<th>Campus</th>
<th>Alpha, Number, Title</th>
<th>Campus</th>
<th>Alpha, Number, Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>HawaiiCC</td>
<td>MATH 135 - Pre-Calculus: Elementary Functions (3 Credits)</td>
<td>MauiCC</td>
<td>MATH 135 - Pre-Calculus: Elementary Functions (3 Credits)</td>
</tr>
<tr>
<td>HonoluluCC</td>
<td>MATH 135 - Pre-Calculus: Elementary Functions (3 Credits)</td>
<td>UC Hilo</td>
<td>MATH 104F - Pre-Calculus: Elementary Functions (3 Credits)</td>
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<tr>
<td>KapiolaniCC</td>
<td>MATH 135 - Pre-Calculus: Elementary Functions (3 Credits)</td>
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<tr>
<td>KauaiCC</td>
<td>MATH 135 - Pre-Calculus: Elementary Functions (3 Credits)</td>
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<tr>
<td>LeewardCC</td>
<td>MATH 135 - Pre-Calculus: Elementary Functions (3 Credits)</td>
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<td></td>
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</tbody>
</table>

13. This course is (check one and click in appropriate textbox and provide details):
   - □ Already articulated with all other UH institutions for equivalency.
   - Provide details of existing or desired articulation (date, college(s), purposes, pre-major, etc.) in this space:

14. Reason for Initiating, Modifying or Deleting Courses or Other Pertinent Comment:
   The math department is streamlining Math 135. The topics of system of equations and inequalities, linear programming, partial fractions, and matrices will be deleted from the required course coverage. System of equations and inequalities are already partially covered in Math 103, College Algebra. Students will have to refresh themselves on their own when they need to use this topic for problem solving. Partial fractions are used in Math 206 Calculus II and students will have to learn partial fractions having only a brief review in that course. Students will have to learn linear programming and matrices in other courses when the need arises. This will allow the course to be streamlined to 3 credits.

CCCM #6100 (Amended for WCC use October 2002)
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course

Requested by: [Signature]  Date: 2/28/08

Approved by: [Signature]  Date: March 11, 2008

[Signature]  Date: 3/18/08

[Signature]  Date: 3/19/08

CCCMM #6100 (Amended for WCC use October 2002)
Levels of Review of Course Proposal at Windward Community College

Course Alpha, Number, and Title: MATH 135 - Pre-Calculus: Elementary Functions (3 Credits)

Signatures

1. Department Area (more than one departmental instructor's signature required)
   
   2/28/08
   2/28/08
   2/28/08

2. Department
   
   Wei Li Tanaka
   Department Chairperson
   
   2/28/08
   2/28/08

3. Division
   
   Margaret Cabeery
   
   3/29/08

4. Curriculum Committee Review
   
   Approved ☒
   
   Disapproved ☐

Reason:

Curriculum Committee Chairperson

March 11, 2008

CCCM #6100 (Amended for WCC use October 2002)
1. What change is proposed in the course? Provide specific information comparing both the “new” and “old” course.

The Math Department is proposing to change Math 135 from a 4 credit course to a 3 credit course. In a new Math 135, the topics of system of equations and inequalities, linear programming, partial fractions, and matrices will be deleted.

2. What is the rationale for the change?

The math department is streamlining Math 135. The topics of system of equations and inequalities, linear programming, partial fractions, and matrices will be deleted from the required course coverage. System of equations and inequalities are already partially covered in Math 103, College Algebra. Students will have to refresh themselves on their own when they need to use this topic for problem solving. Partial fractions are used in Math 206 Calculus II and students will have to learn partial fractions having only a brief review in that course. Students will have to learn linear programming and matrices in other courses when the need arises. This will allow the course to be streamlined to 3 credits.

3. Is the change substantive enough to require a change in course identification? If so, explain thoroughly.

No.

4. Is the course articulated with any 4-year program? Yes

If yes, give details of the agreement(s) and explain any impact the proposed modifications may have on articulation.

It is an elective at UHM. At other UH community colleges, it is still equivalent to Math 135. At UH Hilo, it is equivalent to Math 104F.

5. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial considerations that would be required to implement this course modification. What has been done to provide for these additional costs? Who will teach the course? Is additional preparation needed?

No change in staff, equipment nor facilities will be needed.

6. Will this course modification result in any alterations in the number of hours required to attain a certificate or degree? No If yes, provide details and justification for these alterations.

7. If the course is renumbered to 100 or above, does it meet the criteria for transfer level courses? (Go to next page for transfer course criteria.) *
Windward Community College Mission Statement

*Windward Community College is committed to excellence in the liberal arts and career development; we support and challenge individuals to develop skills, fulfill their potential, enrich their lives, and become contributing, culturally aware members of our community.*

Catalog Description

An analysis of elementary functions. A study of polynomial, rational, exponential and logarithmic functions. Topics also include graphing techniques, transformations, applications, and related topics. Emphasis is placed on topics which will prove useful to students planning to take calculus and also to those who are interested in pursuing math-related careers.

Activities Required at Scheduled Times Other Than Class Times

Activities may include completion of library sections, conferences, TLC lab work, or any activity that the student must complete outside of regularly scheduled class time.

STUDENT LEARNING OUTCOMES

1. Demonstrate proficiency in writing math expressions into different forms and finding the solutions to an equation and inequality using complex numbers where appropriate, by applying formal rules or algorithms.

2. Use appropriate symbolic techniques (such as algebraic techniques) to analyze and solve applied problems, and in the critical evaluation of evidence.

3. Interpret equations geometrically and use geometrical information to obtain the equation of lines and circles.

4. Utilize function concepts.

5. Draw the graphs of functions utilizing behavior information and/or transformations.
6. Utilize precise mathematical language and symbols to effectively communicate mathematics in written and/or oral form and in the presentation of evidence.

7. Traverse the bridge from theory to practice by using theorems related to polynomial functions and demonstrate proficiency in working with polynomial functions.

8. Apply concepts and properties of the logarithm functions.

9. Understand the concept of proof as a chain of inferences by doing some proofs.

**FOUNDATION HALLMARKS**

1. Students will be exposed to the beauty, power, clarity and precision of formal systems.

2. Instructors will help students understand the concept of proof as a chain of inferences.

3. Instructors will teach students how to apply formal rules or algorithms.

4. Students will be required to use appropriate symbolic techniques in the context of problem solving, and in the presentation and critical evaluation of evidence.

5. The course will not focus solely on computational skills.

6. Instructors will build a bridge from theory to practice and show students how to traverse this bridge.

**COURSE CONTENT (may be part of the appendix)**

*Concepts or Topics (What students should know or understand)*

*Skills or Competencies (What students should be able to do in order to complete the student learning outcomes)*

1.  
2.  
3.  
4.  
5.  
6.  

*Issues (Issues that are important in this discipline)*

*
Course Tasks

This section refers to the tasks or the work the student must complete or what the student must do in order to succeed in this class. Grading of tasks can be included here. In this case, the next section (Assessment Tasks and Grades) is unnecessary.

Assessment Tasks and Grading

To be filled in by instructor. There may be policies which affect the method of grading for this class. Please see the “Windward Community College Math Department Policies” handout for a description of these policies.

Note: Please refer to the “How to Prepare a Course Outline at Windward Community College” handout for a description of optional sections the instructor may wish to include.

Learning Resources and Materials

Precalculus: Mathematics for Calculus, 5th ed., by Stuart, Redlin & Watson

Additional Information (may be part of an appendix)

- Instructor expectations
- Sample grading rubrics or scoring sheets
- Additional policies
- Expectations
- Any information you feel the student needs to know