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

1. Type of Action
   - [ ] A. Addition
   - [X] B. Deletion
   - [ ] C. Modification: [ ] in credits [ ] in title [ ] in number or alpha [ ] in prerequisites or co-requisites [X] Other

2. New Alpha, Number and Title
   Math 112-Mathematics for Elementary Teachers II

3. Credits
   3 credits

4. Old Alpha, Number and Title
   Math 111

5. Credits *

6. New Catalog Description
   Math 112 is the second of a two-course sequence designed to give prospective elementary education majors the depth of understanding necessary to teach mathematics in the elementary classroom. Topics include geometry, measurement, data analysis, statistics, and probability. Emphasis will be on communication, connections and problem solving, representations, and reasoning.

7. Select box and type specific information in text box.
   - [X] Prerequisites
   - [ ] Corequisites or Recommended Preparation
     "C" or better in Math 111

8. Student Contact Hours Per Week
   - [X] Lecture 3 hours
   - [ ] Lecture/Lab
   - [ ] Other (click to specify)

9. Proposed Date of First Offering
   - [ ] Semester
   - [X] Year
   - Spring
   - 2007

10. This course [X] is proposed for the Liberal Arts Program
    Program. [ ] can fulfill Math or Logical Thinking
    If Other, specify Symbolic Reasoning (FS) requirement

11. This course [X] 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 108-Mathematics for Education II</td>
<td>LeewardCC</td>
<td>Math 112-Math for Elementary Teachers II</td>
</tr>
<tr>
<td></td>
<td>(4 credits)</td>
<td></td>
<td>(3 credits)</td>
</tr>
<tr>
<td>KapiolaniCC</td>
<td>Math 112-Mathematics for Elementary Teachers II</td>
<td></td>
<td>Math 112-Math for Elementary Teachers II</td>
</tr>
<tr>
<td></td>
<td>(3 credits)</td>
<td></td>
<td>(3 credits)</td>
</tr>
<tr>
<td>MauiCC</td>
<td>Math 112-Math for Elementary Teachers II</td>
<td></td>
<td>Math 112-Math for Elementary Teachers II</td>
</tr>
<tr>
<td></td>
<td>(3 credits)</td>
<td></td>
<td>(3 credits)</td>
</tr>
<tr>
<td>UH Hilo</td>
<td>Math 108-Mathematics for Education II</td>
<td></td>
<td>Math 112-Math for Elementary Teachers II</td>
</tr>
<tr>
<td></td>
<td>(4 credits)</td>
<td></td>
<td>(3 credits)</td>
</tr>
<tr>
<td>UH Manoa</td>
<td>Math 112-Mathematics for Elementary Teachers II</td>
<td></td>
<td>Math 112-Math for Elementary Teachers II</td>
</tr>
<tr>
<td></td>
<td>(3 credits)</td>
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<td>(3 credits)</td>
</tr>
</tbody>
</table>

13. This course [X] is (check one and click in appropriate textbox and provide details):
   - [ ] Already articulated with
     Provide details of existing or desired articulation (date, college(s), purposes, pre-major, etc.) in this space:
     [X] Appropriate for Articulation with UH Manoa, UH Hilo, UH WO, Leeward CC, Kapiolani CC, Maui CC, and Hawaii CC
     Provide details of existing or desired articulation (date, colleges(s), purposes, pre-major or major, etc.) in this space:
   - [ ] Not yet appropriate for Articulation.

14. Reason for Initiating, Modifying or Deleting Courses or Other Pertinent Comment:
    To align and articulate with similar offerings at LCC, KCC, MCC, HawCC, UH H, and UHM (systemwide agreement, September 18, 2004).
    To provide the math course that satisfies the new College of Education's Elementary Education program Symbolic Reasoning (FS) requirement.

Requested by: [Signature] 12/16/05
Approved by: [Signature] February 14, 2006
[Signature] 2/21/06
[Signature] 2/28/06

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

Dean of Instruction

[Signature]

Date 3/1/02

Provoat

[Signature]

Date
**Levels of Review of Course Proposal at Windward Community College**

Course Alpha, Number, and Title: Math 112 - Mathematics for Elementary Teachers II

<table>
<thead>
<tr>
<th>Signatures</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12/16/05</td>
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<tr>
<td></td>
<td>12/16/05</td>
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<tr>
<td></td>
<td>12/16/05</td>
</tr>
<tr>
<td></td>
<td>12/16/05</td>
</tr>
</tbody>
</table>

1. Department Area (more than one departmental instructor's signature required)

2. Department Chairperson

3. Was this course discussed in a department meeting? ☑ Yes ☐ No

4. Division

5. Curriculum Committee Review

   Approved ☑

   Disapproved ☐

   Reason:

   February 14, 2006

   Curriculum Committee Chairperson
1. How is this course related to the education needs and goals of the College/Department/Community as reflected in the EDP/ADP?

   ADP(2002-2008): 1.0 Promote Learning and Teaching for Student Success, 3.0 Promote Workforce and Economic Development, and 7.0 Strengthen the Liberal Arts. The offering of Math 112 adds a course to fulfill UH Manoa Symbolic Reasoning (FS) requirement for the B. Ed. in Elementary Education core (new math requirement beginning with Fall 2007). This course may also be taught as WI.

2. Provide details of any additional staff, equipment, facilities, library/media material, faculty preparation and other financial support that would be required to implement this course. (Include an estimate of the actual cost of supplies and equipment.) What has been done to provide for these additional costs for the proposed date of offering? Who will teach the course?

   No additional resources are anticipated at this time. Possible supplies may include manipulatives to enhance hands-on, exploratory class activities. This course will be taught by math faculty.

3. Is a similar course taught elsewhere in the UH system? Yes If yes, provide details of how this course differs from existing similar courses.

   It is identical to other courses in the UH system (By University of Hawaii Systemwide Agreement on September 18, 2004, campuses agreed to use materials created by Joel Weiner (Mathematics, UHM) with support of Neil Pateman (College of Education, Elementary, UHM).

4. Is this course experimental and/or unique to Windward Community College? No If yes, provide rationale and details of its impact on the College Curriculum

5. Is a similar course taught in the upper division level by a 4-year UH college? No If yes, explain why this course is appropriate at the lower division or how it differs from its upper division counterpart.

6. Please attach a complete course outline. Your course outline should address all the items listed in the Guidelines for Course Outlines.

7. If this course is numbered 100 or above or appropriate for transfer to a 4-year college, complete and attach WCC Form for Transfer Courses (blue). See criteria for transfer courses.
WCC Form for Transfer Courses
(To be completed for articulation with any 4-year UH campus)
(This sheet was originally blue.)

Course Alpha and Number Math 112-Mathematics for Elementary Teacher II

Submitted by Clayton K. Akatsuka

Date December 16, 2005

1. List the counterpart to this course on any 4-year UH campus. Describe the relationship between the course and any related baccalaureate program area.


2. Is this course taught or accepted by major accredited colleges or universities? Give one or two examples.

   Loyola Marymount University in Southern California offers a two-course sequence: Math 106-Mathematics for Elementary Teachers I and Math 107-Mathematics for Elementary Teachers II.

3. Please attach a complete course outline if you have not done so already. Your course outline should address all the items listed in the Guidelines for Course Outlines.
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course
Articulation with 4-year UH Campus Form

COURSE ARTICULATION FORM (GENERAL EDUCATION CORE)

ORIGINATING CAMPUS: Windward Community College DATE SUBMITTED: December 16, 2005

COURSE ALPHA & NUMBER: Math 112 SEMESTER CREDITS: 3

COURSE TITLE: Mathematics for Elementary Teachers II

DATE OF OUTLINE: December 16, 2005 Year 2005

(** Representative outline, no multiple syllabi, please.)

1. Articulation committee to review this course:

   Standing Committees
   - Written Communication  
   - Mathematical & Logical Thinking ☑
   - World Civilizations ☑
   - Languages  
   - Arts & Humanities  
   - Natural Science  
   - Social Science  

2. The information in this item is required by the reviewing committee so that it has a starting point for reviewing the course. It is the responsibility of the submitting campus to do the necessary research to provide this information.

   In the opinion of the originating campus, this course is equivalent to the following and/or meets the criteria for the indicated core categories. Every core category space, except your own campus, must be filled in (can include ‘none’). An equivalent course, if known, may be helpful to committee members but is not required.

<table>
<thead>
<tr>
<th>Receiving Campus</th>
<th>Equivalent Course (Alpha and Number)</th>
<th>Core Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>UH Hilo</td>
<td>Math 108</td>
<td>Quantitative Reasoning</td>
</tr>
<tr>
<td>UH Manoa</td>
<td>Math 112</td>
<td>Symbolic Reasoning (FS)</td>
</tr>
<tr>
<td>UH West Oahu</td>
<td>None</td>
<td>General Education Core - Math and Natural Science</td>
</tr>
<tr>
<td>Hawaii CC</td>
<td>Math 108</td>
<td>Logical Reasoning</td>
</tr>
<tr>
<td>Honolulu CC</td>
<td>None</td>
<td>Symbolic Reasoning (FS)</td>
</tr>
<tr>
<td>Kapiolani CC</td>
<td>Math 112</td>
<td>Symbolic Reasoning (FS)</td>
</tr>
<tr>
<td>Kauai CC</td>
<td>None</td>
<td>Quantitative and Logical Reasoning</td>
</tr>
<tr>
<td>Leeward CC</td>
<td>Math 112</td>
<td>Mathematics and Logical Reasoning</td>
</tr>
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<td>Maui CC</td>
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<td>Quantitative Reasoning</td>
</tr>
<tr>
<td>Windward CC</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

3. If submitted electronically, I understand that this outline will be posted to a publicly accessible web site to enable open access for reviewing committees and campuses. The outline will be taken off the site upon completion of the review.

Typed Name or Signature

Note: If possible submit coversheet and course outline electronically as e-mail attachments (preferably in ‘pdf’ format). If submitting in printed form, 20 copies of coversheet and course outline are required for distribution for appropriate review.

Note: UCA Clearinghouse
John Muth, Office of the Chancellor for Community Colleges, is acting as staff to the University Council on Articulation and is responsible for tracking all courses submitted for articulation.

Revised 1/29/2001
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course
Articulation with 4-year UH Campus Form

COMMITTEE LEVEL:

1. When the committee has completed its review of a course, the “ARTICULATION RECOMMENDATION FORM” (revised 1/18/2001) should be filled in and attached to the outline. The committee chair should also sign the form.

2. If the committee choice is “accept,” indicate receiving campus core area. If the committee choice is “not recommended,” a reason must be provided. Outlines with missing or incomplete recommendation forms will be returned to the committee.

If a committee requires updated or more complete outlines, such requests should be made through the UCA Clearinghouse so that the new outline material can be tracked and placed in the file. If a committee requires more general supporting information, this should be requested through the course’s supporting campus representative on the committee.

3. All committee recommendations should be sent to the UCA Clearinghouse for recordation and dissemination to the campuses. DO NOT SEND THE RECOMMENDATIONS DIRECTLY TO ANY CAMPUS.

RECEIVING CAMPUS:

1. Courses will be sent to each campus for consideration after they come out of committee. Each campus has its own internal process for the approval of courses for its general education core.

2. In all cases where a campus accepts a course into its general education core, it must also indicate which area or part of its core the course fits.

3. In all cases where a campus does not accept a course for articulation, it must supply a reason (even it is “we agree with the committee”).

4. When campus actions are completed, these actions should be conveyed back to the UCA Clearinghouse for recordation and publication.

5. The Community College Policy on Acceptance of UCA Reviewed Courses is as follows:

   (a) All Community Colleges agree to accept positive UCA committee recommendations for core, including core categories assigned by the committee.

   (b) All Community Colleges agree to accept the UCA committee judgment of not-Recommended (nR) without further review.

   (c) This policy is retroactive to the time the current articulation effort started.

   (d) The Community Colleges reserve the right to review and modify core category assignments as necessary to insure appropriate categorization and to realign such assignments if changes are made to the campus core structure. Such modifications shall not interfere with the timely publication of the student transfer handbook.

Note: UCA Clearinghouse
John Muth, Office of the Chancellor for Community Colleges, is acting as staff to the University Council on Articulation and is responsible for tracking all courses submitted for articulation.

Revised 1/29/2001
University of Hawaii Community Colleges
Proposal to Initiate, Modify or Delete a Course
Articulation with 4-year UH Campus Form

ARTICULATEDCOURSE
CHANGE IN ALPHA/NUMBER/TITLE

Old Course

Course Alpha & Number:

Title:

Revised Course

Course Alpha & Number:

Title:

Semester and Year when the revised course was/will be first offered:

Reason for the change in Alpha/Number/and/or Title:

Note: A current outline of the course must be submitted with this form. Undated outlines are not acceptable.

I certify that this course has had its alpha, number, and/or title changed, but that it is substantially the same course as the course that was reviewed and approved for articulation.

Campus: Windward Community College

Certifying Authority (Typed Name or Signature and Title)

Date:

SUBMIT TO: UCA Clearinghouse, Attn: John Muth
Chancellor's Office for CC, 2327 Dole Street

Revised 1/19/01
Windward Community College
COURSE OUTLINE

Note: Delete all italicized instructions before saving.

COURSE/CATALOG DESCRIPTION
Math 112 is the second of a two-course sequence designed to give prospective elementary education majors the depth of understanding necessary to teach mathematics in the elementary classroom. Topics include geometry, measurement, data analysis, statistics, and probability. Emphasis will be on communication, connections and problem solving, representations, and reasoning and proof.

COURSE NAME
Mathematics for Elementary Teachers II

COURSE ALPHA
Math 112

CREDIT/CONTACT HOURS
2 credits/4 hours lecture per week

PREREQUISITES REQUIRED
"C" or better in Math 111

RECOMMENDED PREPARATION AND BASIC SKILLS

If the course involves the use of mathematics, indicate the level of quantitative reasoning required.

Upon successful completion of this course, the student should be able to:
a. communicate about arithmetic operations using set theory and counting;
b. explain the relationship between adding and subtraction; and between multiplication and division;
c. represent operations of addition and multiplication using translations along a line and composition of translations;
d. interpret new functions created by magnification and reflection;
e. discuss primes and their relation to composite numbers;
f. interpret a rational as a ratio when connected to probabilities or various rates including speed and averages;
g. use dimensional analysis to help solve a problem;
h. explain an irrational number and the significance of specific irrational numbers such as pi;
i. interpret the geometry of the real number line from studying translations, reflections and dilations of the real number line;
j. connect arithmetic operations with the compositions of translations and dilations in distance between points

What knowledge and/or skills will successful completion of the course develop in the student?

METHOD OF INSTRUCTION
The mode of instruction varies from instructor to instructor. Generally, the mode of instruction is primarily discussion-problem solving where the initial portion of each class period may be utilized to discuss and clarify any questions from the preceding class meeting and/or assignment, and the remaining portion is used to discuss new material. Lectures, directed student explorations, group work, reports, Internet research, appropriate technologies, and projects will also be used as appropriate.

COURSE CONTENT AND APPROXIMATE TIME TO BE SPENT ON EACH TOPIC
Unit 1: The Natural Numbers: standard operations and their properties (6-7 weeks)
Unit 2: The Integers: addition and its properties (1-2 weeks)
Unit 3: The Rationals: their meaning, applications and the study of their operations and properties. Note: Rate problems should be done here. (5-6 weeks)
Unit 4: Introduction to Number Theory: multiplication on the integers (1-2 weeks)

Note: Specific aspects of geometry and measurement, and probability are covered as applications of the operations that are introduced on the various kinds of numbers.

A proposed semester schedule is acceptable.

TEXT(S)
"Mathematics for Educators II," by Joel Weiner.
By University of Hawaii Systemwide Agreement, September 18, 2004, campuses agreed to use materials created by Joel Weiner (Mathematics) with support by Neil Pateman (College of Education, Elementary Education). WCC supports this agreement to facilitate systemwide articulation of Math 112.

Additional material/possible texts:

List text(s) to be used and reading level of text. Contact Learning Skills Center to determine reading level. List text(s) to be used. If there is no text, so state. Indicate approximate percentage of text to be used if less than 75 percent.