Mathematics Discipline Meeting
Thursday, February 26, 2015
Minutes

Present: Clayton Akatsuka, Weiling Landers, Jean Okumura, Navtej (Johnny) Singh, Jody Storm.
The meeting was called to order at 1:32 pm in the Mana’o Conference Room 107.
The minutes of the February 5, 2015 meeting were accepted as circulated.

1. Math 100 Departmental Final Exam – Jody Storm
   - Most Math 100 faculty want students to use a calculator for the final exam.
   - It was decided that students will be allowed to use a non-graphing calculator. Therefore, they may use a basic five function calculator or a scientific calculator.

2. Math 231 – Catalog Description
   - It was decided that we would use the same catalog description as UH Manoa that is general
   - The catalog description will be revised to read: Vector algebra, vector-valued functions, differentiation in several variables, and optimization.
   - Jody will submit the curriculum forms for the catalog revision for Math 231.

3. Math 100, 101, 103, 111, 115 – Revision of Prerequisites
   - It was decided to revise the prerequisites for Math 100, 101, 103, 111, and 115 to include completion of Math 26 with a C grade or better.

   - The subcommittee consisting of Clayton Akatsuka and Jody Storm agreed with the recommendation made by Weiling Landers to adopt Julie Miller’s text “College Algebra Essentials.”
   - It was decided to use Julie Miller’s text “College Algebra Essentials” for 2015 – 16.

   - Jessica from Pearson indicated that if we wanted to continue to use the 11th edition of the Lial book, it would be best to do a custom textbook.
   - Jessica indicated that the price for the custom book and the new edition would be the same.
   - Using the 11th edition would save students on cost because they could find used books if they really wanted a textbook. Online materials for the 11th edition would still be available.
The major concern is that we have a sufficient supply of the custom book, otherwise if the bookstore runs out and there are no more copies available at Pearson’s warehouse, then it will take a while to print more copies.

In the past we used the 9th edition for a long time, skipping the use of the 10th edition and then we switched to the 11th edition.

There is a desire to continue to use the 11th edition of the Lial book.

6. Grand Canyon University – MAT 134 – Course Evaluation
   - Graduation Requirement: Yes
   - Equivalency/Fulfill FS Requirement: No/No
   - Next course: Math 103 or take placement test.

   - For the STEM area, WCC agreed to look into Math 140X or accelerated Math 135/140.
   - For Non-STEM area, we should look at trying to have only one course below college level.

8. Math 203 - Pilot for fall 2015
   - Pilot for fall 2015: We would like to try waiving the Math 135 pre-requisite and allow students who complete Math 103 with a C grade or better to try Math 203 and see how they do.
   - We should ask Math 103 instructors to inform their students about this pilot and if students are interested, they need to see Johnny Singh.

9. Reverse Degree Transfer and Math Graduation Requirement
   - It was unanimously approved that as long as a student is awarded a Bachelor’s Degree from a college in the UH system, then the math graduation requirement at WCC could be waived so that a reverse transfer could be done and the AA degree awarded to this student.

10. Title III Grant Proposal Ideas for Math
    - Faculty were encouraged to think about ideas and bring them to the next meeting.

11. ATD Conference – Navtej (Johnny) Singh
    - A basically free account can be created at polleve.com. This site integrates polls into PowerPoint and answers from students can be shown. It is similar to clickers but much easier to use.
    - Khan Academy has upgraded their free website. Johnny looked to see if they have enough materials to replace textbooks but they are focusing on ACT/SAT supplements.
    - MyMathTest has been used at a college for placement. It could be used to supplement COMPASS. If students feel that they are placed too low, they could take MyMathTest
to possibly get a better placement. Or, MyMathTest could be used as the primary placement tool.

The meeting was adjourned at 3:08 pm. (Minutes by J. Okumura)
Attachment.
UHCC Math Discipline Meeting (February 13, 2015)

STEM Pathway

What does college ready mean?
- Placement into MATH 135 or MATH 205

MATH 103 topics
- Logarithms functions - domain, range, graph, applications, inverses, properties
- Exponential functions
- Polynomial functions – linear, quadratic, cubic, end behavior
- Rational functions
- Functions – algebra, composition, graphing
- Radical functions
- Radical/rational exponents
- Complex numbers – intro for quadratics
- Circles
- Systems of equations – solving 3x3 system, non-linear

MATH 135 topics
- Polynomial functions in depth
- Rational functions
- Logarithms functions
- Exponential functions
- Complex
- Transformations

MATH 140
- Trigonometry – unit circle, triangle, equations, functions, identities
- Conics
- Vectors
- Polars
- Complex

Next Steps to shorten college level pathway:
- Hawaii CC – discuss combining MATH 135 and MATH 140
- Honolulu CC – discuss offering MATH 135/140 in one semester
- Kapiolani CC – discuss offering MATH 135/140 in one semester
- Kauai CC – currently offering course similar to MATH 140X
- UH Maui College – MATH 135/140 can be taken in one semester, offer MATH 119 (MATH 135/140 combined) for engineering students
- Leeward CC – currently offers MATH 140X
- Windward CC – look into MATH 140X
One level before MATH 103 topics
- Explain the mathematics behind the calculations
- Number sense
- Factoring – difference of squares, cubes, quadratic trinomials, 4 term polynomials by grouping
- Integer exponents
- Equation of a line
- Linear equations and inequalities
- Quadratic formula
- Quadratic equations – 1 and 2 variables
- (Exposer to completing the square)
- Solving radical equations by “squaring both sides” once
- Operations on radical expressions
- Rationalizing monomial denominators with any index (exposer to binomial with square root)
- Solving rational equations
- Difference between equation and expression
- Basic graphing by plotting points
- Operations on polynomials
- Concept of absolute value
- Solving 2x2 systems of equations
- Applications
- Basic set notation/interval notation
- Proper mathematical notation and terminology

Two levels below MATH 103 topics
- Properties of exponents
- Order of operations
- Operations with fractions
- Percents
What do we think is necessary for students to know before they get to a nonSTEM, college level math course in order to be successful? This list is what we believe it means to be college ready for a nonSTEM college level math class. This material could be covered at any time during developmental math. Some of it could/should be covered 2 levels below college level (or more for some campuses). As such, we recommend that the 1 level below college level course be a 3-4 credit course.

Critical Thinking and Problem Solving Strategies
- Recognize patterns
- Look at examples
- Make your own examples
- Counterexamples
- Substitution
- Reasonableness of answers
- Estimation/approximation
- Interpretation (words & graphs)
- Analysis
- Guess and check
- Drawing pictures
- Estimation
- Create and Solve a simpler problem
- Generalize
- Relate/translate an old concept to a new
- Answer the question
- Understand problem
- Relevant information

Reading mathematically (math vocab.)
Speak mathematically (communicate)

Number Sense
- Place value
- Estimation
- Properties of real numbers

Idea of inequalities – interpretation

Linear Equations
- Manipulation
- Graphing
- Slope and y-intercept

Evaluating formulas
- Plug and chug

Fractions/decimals/percent/proportions
- Direct/inverse variation
- Relative change/error

Graphical Representations
- Bar graphs
- Pie charts
Dimensional Analysis
- Looking at labels of numbers
- Like terms

Basic sets
- Venn diagrams
- And/or
- Intersection, union

Basic Probability
- Mean/median/mode
- Discrete probability
- Sample space/other definitions

Affective
- How to study
- Commitment

Calculator skills

Applications
Operations on real numbers
- + - * /
- Whole number exponents

Geometry
- Plane geometry
- Area, perimeter, volume
- Application

NEXT STEPS
1) Talk to your publishing company rep to see what sort of textbooks they already have that are pre-nonSTEM
2) Have a department meeting to propose having a nonSTEM math class one level below (81?). Talk about collaboration with other campuses. Those who already have course like this will start by comparing.
3) Report back at HSI
4) Some campuses have Statway (32) or Quantway (75?) and can keep that.