

# *Accelerating Acceleration*

**June 13, 2013**

**Joseph Gerda and Kathy Kubo**



# CALIFORNIA ACCELERATION PROJECT

<http://cap.3csn.org/>

## **Supporting California's 112 Community Colleges To Redesign Developmental English and Math Curricula And Increase Student Completion**

An initiative of the California Community Colleges' Success Network (3CSN), funded through the Basic Skills Initiative of the state Chancellor's Office. Additional support from the Walter S. Johnson Foundation, LearningWorks, and "Scaling Innovation," a project of the Community College Research Center funded by the William and Flora Hewlett Foundation

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# Introduction

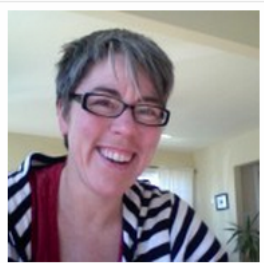
- **Which college do you represent?**
- **How many math acceleration sections do you offer per year?**
- **How many math faculty are currently teaching in your accelerated program?**

**February 2011**

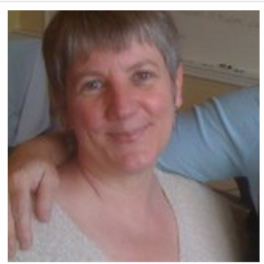
# The Vision: Katie Hern & Myra Snell



## Project Leadership and Partners



**Katie Hern**, Ed.D., serves as Director of the California Acceleration Project and provides coaching to participating English faculty. She has been teaching students to read, write, and think critically for 20 years. An instructor at Chabot College, Hern has been deeply influenced by the **Chabot English department's philosophy** of integrating reading and writing and providing developmental students the same kinds of challenging tasks they will see in college-level courses, in an environment of greater scaffolding and support. Her classroom inquiry into the "**Academic Sustainability Gap**" sheds light on the issues teachers need to address in an accelerated classroom. Hern's past roles include serving as Co-Director of the California-wide Faculty Inquiry Network and Dean of Academic Affairs at John F. Kennedy University. [khern@chabotcollege.edu](mailto:khern@chabotcollege.edu)



**Myra Snell** is the Math Lead for the California Acceleration Project, coaching and creating curricular materials to support faculty teaching pre-Statistics courses. She is a Professor of Mathematics at Los Medanos College, where she has been teaching courses from arithmetic to calculus and statistics for the last 20 years. Snell created **Path2Stats**, the first pre-Statistics course in the country to provide a one-semester alternative to the traditional multi-level developmental algebra sequence. Snell's past roles at Los Medanos include working with faculty across campus to assess outcomes and use the results to improve learning experiences for students. She was a coach for the Faculty Inquiry Network, worked with Carnegie-Mellon's Open Learning Initiative in Statistics, and served as a consultant to the Carnegie Foundation's Statway project. [msnell@losmedanos.edu](mailto:msnell@losmedanos.edu)

March 2011

# Department Discussions Faculty Inquiry Groups

## Algebra Skills needed for Statistics

### Table of Contents from a traditional Elementary + Intermediate Algebra text

- **Chapter 1:** Some Basic Concepts of Arithmetic and Algebra
  - 1.1. Numerical and Algebraic Expressions (23)
  - 1.2. Prime and Composite Numbers (20)
  - 1.3. Integers: Addition and Subtraction (25)
  - 1.4. Integers: Multiplication and Division (21)
  - 1.5. Use of Properties (21)
- **Chapter 2:** The Real Numbers
  - 2.1. Rational Numbers: Multiplication and Division (20)
  - 2.2. Rational Numbers: Addition and Subtraction (21)
  - 2.3. Real Numbers and Algebraic Expressions (21)
  - 2.4. Exponents (22)
  - 2.5. Translating from English to Algebra (22)
- **Chapter 3:** Equations, Inequalities, and Problem Solving
  - 3.1. Solving First-Degree Equations (20)
  - 3.2. Equations and Problem Solving (21)
  - 3.3. More on Solving Equations and Problem Solving (23)
  - 3.4. Equations Involving Parentheses and Fractional Forms (2)
  - 3.5. Inequalities (21)
  - 3.6. Inequalities, Compound Inequalities, and Problem Solving
- **Chapter 4:** Formulas and Problem Solving
  - 4.1. Ratio, Proportion, and Percent (21)
  - 4.2. More on Percents and Problem Solving (20)
  - 4.3. Formulas: Geometric and Others (21)
  - 4.4. Problem Solving (20)
  - 4.5. More About Problem Solving (23)
- **Chapter 5:** Coordinate Geometry and Linear Systems
  - 5.1. Cartesian Coordinate System (22)
  - 5.2. Graphing Linear Equations (20)
  - 5.3. Slope of a Line (22)
  - 5.4. Writing Equations of Lines (21)
  - 5.5. Systems of Two Linear Equations (25)
  - 5.6. Elimination-by-Addition Method (20)
- **Chapter 6:** Exponents and Polynomials
  - 6.1. Addition and Subtraction of Polynomials (20)
  - 6.2. Multiplying Monomials (22)
  - 6.3. Multiplying Polynomials (22)
  - 6.4. Dividing by Monomials (20)
  - 6.5. Dividing by Binomials (20)
  - 6.6. Zero and Negative Integers as Exponents (21)
- **Chapter 7:** Factoring, Solving Equations, and Problem Solving
  - 7.1. Factoring by Using the Distributive Property (21)
  - 7.2. Factoring the Difference of Two Squares (22)
  - 7.3. Factoring Trinomials to the Form  $x^2 + bx + c$  (to the 2nd)
  - 7.4. Factoring Trinomials of the Form  $ax^2 + bx + c$  (to the 2nd)
  - 7.5. Factoring, Solving Equations, and Problem Solving (20)
- **Chapter 8:** A Transition from Elementary Algebra to Intermediate Algebra
  - 8.1. Equations: A Brief Review (20)
  - 8.2. Inequalities: A Brief Review (36)
  - 8.3. Equations and Inequalities Involving Absolute Value (34)
  - 8.4. Polynomials: A Brief Review and Binomial Expansions I
  - 8.5. Dividing Polynomials: Synthetic Division (20)
  - 8.6. Factoring: A Brief Review and a Step Further (20)
- **Chapter 9:** Rational Expressions
  - 9.1. Simplifying Rational Expressions (21)
  - 9.2. Multiplying and Dividing Rational Expressions (21)
  - 9.3. Adding and Subtracting Rational Expressions (20)
  - 9.4. More on Rational Expressions and Complex Fractions I
  - 9.5. Equations Containing Rational Expressions (21)
  - 9.6. More on Rational Equations and Applications (20)
- **Chapter 10:** Exponents and Radicals
  - 10.1. Integral Exponents and Scientific Notation Revisited I
  - 10.2. Roots and Radicals (20)
  - 10.3. Simplifying and Combining Radicals (21)
  - 10.4. Products and Quotients of Radicals (20)
  - 10.5. Radical Equations (19)
- **Chapter 11:** Quadratic Equations and Inequalities
  - 11.1. Complex Numbers (21)
  - 11.2. Quadratic Equations (20)
  - 11.3. Completing the Square (21)
  - 11.4. Quadratic Formula (22)
  - 11.5. More Quadratic Equations and Applications (22)
  - 11.6. Quadratic and Other Nonlinear Inequalities (40)
- **Chapter 12:** Coordinate Geometry: Lines, Parabolas, Circles, Ellipses, and Hyperbolas
  - 12.1. Distance, Slope, and Graphing Techniques (24)
  - 12.2. Graphing Parabolas (20)
  - 12.3. More Parabolas and Some Circles (20)
  - 12.4. Graphing Ellipses (20)
  - 12.5. Graphing Hyperbolas (17)
- **Chapter 13:** Function
  - 13.1. Relations and Functions (21)
  - 13.2. Functions: Their Graphs and Applications (19)
  - 13.3. Graphing Made Easy Via Transformations (20)
  - 13.4. Composition of Functions (20)
  - 13.5. Direct Variation and Inverse Variation (20)
- **Chapter 14:** Exponential and Logarithmic Functions
  - 14.1. Exponents and Exponential Functions (25)
  - 14.2. Applications of Exponential Functions (28)
  - 14.3. Inverse Functions (22)
  - 14.4. Logarithms (33)
  - 14.5. Logarithmic Functions (26)
  - 14.6. Exponential Equations, Logarithmic Equations, and Problem Solving (30)
- **Chapter 15:** Systems of Equations: Matrices and Determinants
  - 15.1. Systems of Two Linear Equations: A Brief Review (20)
  - 15.2. Systems of Three Linear Equations in Three Variables (23)
  - 15.3. A Matrix Approach to Solving Systems (20)
  - 15.4. Determinants (23)
  - 15.5. Cramer's Rule (22)
  - 15.6. Systems Involving Nonlinear Equations (20)

*April/May 2011*

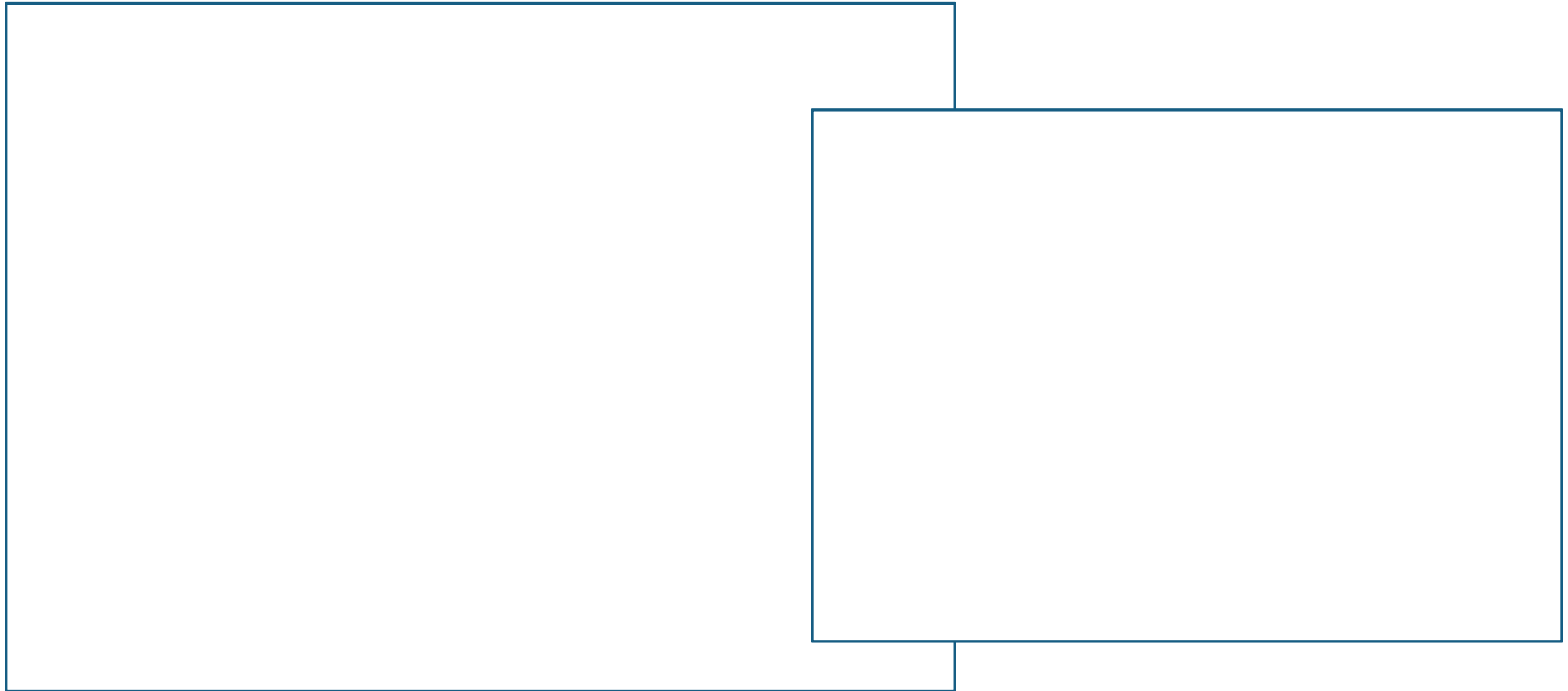
**Initial faculty team: 3 FT + 1 PT**

Team photo

Team Photo

**June 2011**

# **Community of Practice in Acceleration Institutes**



*September 2011*

**Added two PT instructors to the team**



Team Photo



October 2011

# Approval of New Math Sequence Chart

NON-DEGREE APPLICABLE

**Math 025 OR 026**  
Arithmetic  
Lecture OR  
Computer Assisted  
(5 units)

**MATH 058 OR 059**  
Algebra Preparation  
Lecture OR  
Computer Assisted  
(5 units)

**MATH 060**  
Elementary Algebra  
(5 units)

ASSOCIATE DEGREE  
APPLICABLE

**MATH 075**  
Intermediate Algebra  
for Statistics (5 units)  
*FOR LIBERAL ARTS  
MAJORS*

**MATH 070**  
Intermediate  
Algebra  
(5 units)

Math 083 & Math 070 are  
prerequisites for Math 102

TRANSFERABLE  
TO 4-YEAR COLLEGES

**MATH 111**  
Finite Math (4 units)

**MATH 130**  
Elementary Teachers (3 units)

**MATH 140**  
Introductory Statistics (4 units)

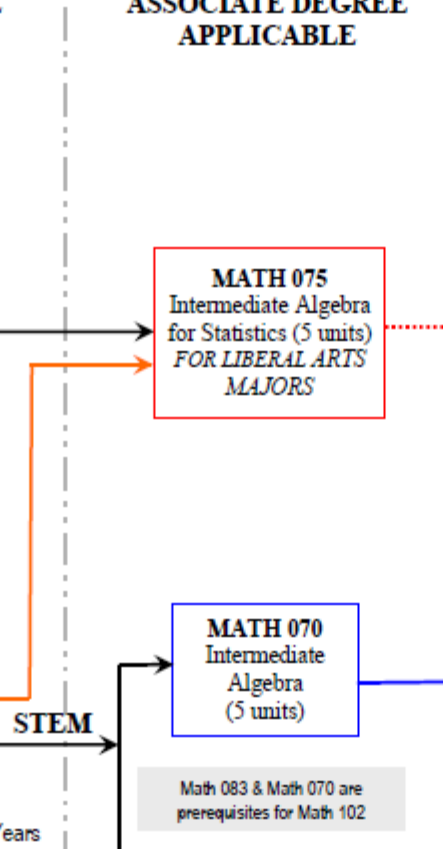
**PSYCH 104/ SOCI 137**  
Statistics for the Social & Behavioral Sciences  
(3 units)

**ECON 291**  
Statistical Methods in Business & Econ (3 units)

**MATH 103**  
College  
Algebra  
(4 units)

**MATH 240**  
Math Analysis for  
Business & Social  
Science (5 units)

All Assessment Test Scores Expire After 2 Years



**January 2012**

# Student Recruitment

## ***A BETTER PATH TO STATISTICS!***

### **INTRODUCING MATH 75: INTERMEDIATE ALGEBRA FOR STATISTICS**

COLLEGE OF THE CANYONS IS OFFERING AN INNOVATIVE MATHEMATICS COURSE (MATH 075). THIS COURSE IS DESIGNED AS A BETTER AND FASTER PREREQUISITE FOR STUDENTS WHO PLAN ON TAKING TRANSFER-LEVEL STATISTICS.

#### **MATH 75**

- ALLOWS YOU TO COMPLETE ONE FIVE-UNIT COURSE INSTEAD OF TWO AS A PREREQUISITE FOR MATH 140.
- MEETS THE MATHEMATICS COMPETENCY REQUIREMENT FOR THE AA/AS DEGREE.



**February 2012**

**Spring semester begins!**

Team photo

# Program Growth 2012-13

TERM	NUMBER OF SECTIONS	NUMBER OF PAIRED SHORT-TERM COURSES**
<b>Spring 2012</b>	<b>11</b>	<b>2</b>
Summer 2012	4	
<b>Fall 2012</b>	<b>14</b>	<b>3</b>
<b>Spring 2013</b>	<b>16</b>	<b>2</b>
Summer 2013	5	
<b>Fall 2013</b>	<b>18</b>	<b>5</b>

**\*\*** *Student cohort of Intermediate Algebra for Statistics (8 weeks) and Introductory Statistics (8 weeks) with the same instructor for both courses*

***February 2012***

**Bi-monthly faculty  
meetings begin**

**May 2012**

# 2<sup>nd</sup> Generation Faculty Orientation

## Math 075 Orientation Agenda

Friday, May 4, 2012

9:00am – 3:00pm

- Introductions
- Addressing the Affective Domain
- Principles of Math 075 Curriculum Design
- Introduction to OLI
- Discovery and Activity Based Learning

***August 2012***

# **Tutor Training**

# Future plans

- Align transfer level statistics curriculum with pre-statistics course
- Create instructor training for statistics





# Contact Information

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