Developmental Mathematics Program: Systemic Progress at a Four-Year University

2012
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Silvia Kang

www.csudh.edu
• First time freshmen 1214
• Undergrad transfer 1786
• Total enrollment 13,692
• FTES 10,094

- HISPANIC 55%
- BLACK/AA 20%
- ASIAN 10%
- WHITE 12%
- OTHER 3%
- AMER INDIAN 0%
CSUDH FRESHMAN REMEDIATION
BY HIGH SCHOOL - FALL 2011
Students Needing Remediation/Total First Time Freshman
Fall First-Time Freshmen Math Level
Fall 2005 to Fall 2011

[Graph showing percentage of students proficient in math, needs MAT 9 or equivalent, and needs MAT 3 & MAT 9 or equivalents from Fall 2005 to Fall 2011.]

Mat 03 = Beginning Alg
Mat 09 = Intermediate Alg
Fall First-Time Freshmen Math Remediation
Fall 2005 to Fall 2011

Completed all Math Requirements by Next Fall
Needs MAT 9 or equivalent
Needs MAT 3 & MAT 9 or equivalents

Mat 03 = Beginning Alg
Mat 09 = Intermediate Alg
CAMPUS RESOURCES
Campus Assets
Campus Assets

- TITLE V GRANT
- EOP/ETE
- GILBERT FOUNDATION
- MATH
Curriculum

• Beginning Algebra
• Intermediate Algebra
• Fusion GE Courses
  • STAT
  • Finite
Curriculum Management

- Textbook and Web support
- McGraw-Hill Connect Math
Textbook

*Beginning and Intermediate Algebra*
Sherri Messersmith
Web Support

Get Connected. Get Results.

McGraw-Hill Connect is a digital teaching and learning environment that saves students and instructors time while improving performance over a variety of critical outcomes.

PROVEN EFFECTIVE

TAILORED TO YOU

Connect’s rich content, abundant assignment types, and flexible policy options can be customized.
Curriculum Management

- Calendar
- Test schedule
- Scheduled Office Visits
Test Management

• Test Construction
• Reliability and Validity
• Item Design
• Item analysis
Test Construction

- Target test-median of 65% to 68%
- 30% “Easy” items ($\geq 75\%$)
- 50% “Medium” items ($\geq 60\%$ and $< 75\%$)
- 20% “Hard” items ($< 60\%$)
Test Construction

• Midterm
  • 25 items each
  • Cumulative - Midterm 2 (33%, 66%)

• Final
  • 35 items
  • 25%, 30%, 45%
Student Success Policy

- 70% on final
- 70% overall average
- 65% to 70% judgement of instructor
1. Determine the value(s) of the variable for which the expression is undefined.
\[
\frac{m + 3}{m - 4}
\]
A. 4  B. −4  C. −3  D. 3

2. Determine the value(s) of the variable for which the expression is zero.
\[
\frac{5x + 12}{3x + 7}
\]
A. \(-\frac{7}{3}\)  B. \(\frac{7}{3}\)  C. \(-\frac{12}{5}\)  D. \(\frac{12}{5}\)
Faculty feedback

• Test item feedback

• Pedagogy
## Item Analysis

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<th>Question</th>
<th>Section</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>Key</th>
<th>N</th>
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<td>103</td>
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</table>
Movable line is at 70
Student Support

- Summer Bridge (EOP)
- Cohort EOP Students
- Supplemental Instructors (SI)
- Workshop Sessions
Summer Bridge

- EOP Students
- Summer Program
- Aggressive Invitation
- Lowest Performing Students on ELM
Cohort EOP Students

- Fall Schedule to Cohort Math Classes
Supplemental Instructors

- SI TUTORS
- Undergraduate Students
- Attend Every class session
- Workshop Sessions
Future Plans
Fall First-Time Freshmen Math Remediation
Fall 2005 to Fall 2011

- Mat 03 = Beginning Alg
- Mat 09 = Intermediate Alg
Hybrid Model using ALEKS

- Individualized Homework
- Continual review of material
- Immediate Explanation
- Flexibility to work on anytime
Expanded SI Model

- SI Tutors in all Developmental Math courses
Fusion Courses

- Second Semester Developmental Math
- GE Course
- Statistics and Finite Mathematics
- Four units
- MWF Schedule
- SI Tutors
Early Start Program

• All Developmental Math Students
• Mandatory Summer School
• Three-unit courses
• One-unit option
Other Models

- Flipped Courses
- Inquiry-based Courses
Questions?

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