

Beyond Crossroads **Implementing Mathematics Standards in the First Two years of College**

September 2005
 Draft Version 7.0

Table of Contents

	Page
To the Reader	iv
Chapter 1	
Beyond Crossroads	1
Shaping the Vision	1
Distinctive Characteristics of the Two-Year College Student, Faculty, and Institution	3
Table 1 Percent of Students Enrolled in Mathematics Courses at Two-Year Colleges in 2000	3
Table 2 Percent of Sections Taught by Full-Time and Adjunct Faculty in Two-Year Colleges in 2000	4
The Standards of <i>Crossroads in Mathematics</i> (1995)	5
Conclusion	7
Endnotes for Chapter 1	8
Chapter 2	
Guiding Principles	9
Embracing Change	9
Basic Principles of <i>Beyond Crossroads</i>	9
Conclusion	11
Endnotes for Chapter 2	11
Chapter 3	
The Implementation Standards of <i>Beyond Crossroads</i>	12
The Implementation Cycle of <i>Beyond Crossroads</i>	13
Figure 1 The Implementation Cycle of <i>Beyond Crossroads</i>	14
Implementing the Vision	15
Endnotes for Chapter 3	16

Chapter 4		
Student Learning and the Learning Environment		17
	Responding to the Needs of a Diverse Student Population	17
	Initial Placement into the Mathematics Curriculum	18
	Learning Styles	20
Table 3	Selected Learning Style Characteristics and Strategies for Students	20
	Learning to be Problem Solvers	22
	Mathematics Anxiety and Other Factors That Influence Learning	23
Table 4	Strategies for Coping with and Helping to Alleviate Mathematics Anxiety	24
	Inside and Outside the Mathematics Classroom	25
	Conclusion	27
Table 5	Implementing the Standards: Student Learning and the Learning Environment	28
	Endnotes for Chapter 4	28
Chapter 5		
Assessment of Student Learning		31
	The Assessment Cycle	31
Figure 2	The Assessment Implementation Cycle	32
	Assessment at Three Levels	32
Table 6	Multiple Levels of Assessment	33
	Classroom Assessment	34
	Course Assessment	35
	Program Assessment	36
	Conclusion	38
Table 7	Implementing the Standards: Assessment of Student Learning	39
	Endnotes for Chapter 5	39
Chapter 6		
Curriculum and Program Development		40
	The Changing Curriculum	40
Figure 3	The Curriculum Implementation Cycle	42
	Quantitative Literacy	42
	Developmental Mathematics Courses and Programs	44
	General Education Mathematics Courses	46
	Technical and Career Courses and Programs	47
	Teacher Preparation Courses and Programs	48
	Mathematics-Intensive Courses and Programs	51
	Conclusion	52
Table 8	Implementing the Standards: Curriculum and Program Development	53
	Endnotes for Chapter 6	54

Chapter 7		
Instruction		56
	Teaching Styles	56
Table 9	Student-Centered and Teacher-Centered Teaching Styles	56
	Active Student Learning	58
Table 10	Instructional Strategies that Promote Active Learning	59
	Teaching with Technology	60
	Distance Learning	62
	Conclusion	64
Table 11	Implementing the Standards: Instruction	65
	Endnotes for Chapter 7	65
Chapter 8		
Professionalism		67
	Hiring and Mentoring of Mathematics Faculty	67
	Professional Development and Service	69
	The Scholarship of Teaching Mathematics	71
	Improving Student Learning through Faculty Evaluation	72
	Conclusion	73
Table 12	Implementing the Standards: Professionalism	74
	Endnotes for Chapter 8	74
Chapter 9		
Involvement of Stakeholders in Implementation		76
Figure 4	Collaborating with Stakeholders	76
	Building Public Understanding and Support	77
Figure 5	Planning for Retirement	77
	Connecting with preK-12 Education	78
Figure 6	Algebra II Critical for Work World and College	78
	Connecting with Four-Year Institutions	79
	Connecting with Publishers and Instructional Resource Developers	80
	Connecting with Business and Industry	80
	Connecting with Professional Societies, Government Agencies, and Policy Makers	81
	Conclusion	82
	Endnotes for Chapter 9	82
Chapter 10		
Moving from Vision to Reality		84
	Endnotes for Chapter 10	85
	The <i>Crossroads</i> Team	86