



## **Professional Education Unit**

### **Program Review Document 3: Program Experiences**

(Version 05/07/08)

**Preparation Program: Mathematics**

**Degree: Bachelor of Science**

**Certification Level: 8-12 (Secondary)**

**Preparation Level: Initial**

**Rank Level: Rank III**

**Date Submitted: February 1, 2010**

**Link to Undergraduate Catalog: [Undergraduate Catalog](#)**

**State Regulation governing this program: 16 KAR 2:010**

The following WKU faculty and staff have contributed to the development of this document: Wanda Weidemann, Vicki Metzgar

## Introduction

### Program Relationship to Unit Conceptual Framework and Continuous Assessment Plan

WKU's *Conceptual Framework* represents beliefs and values that are shared by all programs that prepare university students to enter education professional fields. These fields include:

- Teachers in elementary, middle, and high schools
- Library media specialists
- Principals and superintendents
- School counselors
- School nurses
- School psychologists
- Speech pathologists

All these education professional preparation programs are considered by the National Council for Accreditation of Teacher Education (NCATE) and Kentucky's Education Professional Standards Board (EPSB) to represent WKU's *Professional Education Unit*. Faculty representatives from each of the education fields in the *Unit* were involved in various aspects related to the development and approval of the *Conceptual Framework*. An abridged version of the *Conceptual Framework* is attached to this document as Appendix A.

It is important to note that during the development of the Conceptual Framework, committee members thought it important to delineate all essential beliefs, ideas, and implications *even if they were difficult to measure or live out*. Thus, many beliefs, ideas, or implications reflect what the unit *aspires* to accomplish over time.

Based on these values, the Professional Education Council adopted the unit-wide *Continuous Assessment Plan*. From this plan, each program developed a Program Assessment Plan (Appendix B). As can be seen from our plan, the first "Continuous Assessment Matrix" maps out how our program attempts to live out the unit-wide assessment vision. The "Critical Performance Assessment Alignment Matrix" describes the assessments that our program uses to measure candidate progress toward the Kentucky Teacher Standards. Unless noted, all these assessments are collected within the unit's Electronic Portfolio and Accountability Systems and are used to guide decisions as indicated in the Transition Points described in the Program Assessment Plan. The "Other Key Data Collection Matrix" identifies where other unit-wide data related to the unit *Conceptual Framework* are collected within our program.

Furthermore, to ensure that all our program candidates work with diverse students, we have identified the clinical field placement associated with SMED 320 - Classroom Interactions as the designated experience where candidates are placed in diverse settings. We determined our most diverse settings by averaging the ethnic diversity of the schools in our service area (about 11%) and selecting schools as diverse that exceed this percentage. The following courses, assessments, and experiences provide additional opportunities for our program candidates to address topics related to diversity:

SMED 101/102 – Lesson Planning  
 SMED 320 Critical Performance – Video analysis of teaching  
 SMED 470 Critical Performance – Multi-day unit  
 SMED 489 Critical Performance – Teacher Work Sample

Finally, after the Professional Education Council adopted a unit-wide set of dispositions (see Appendix A), our program has identified the following courses and experiences where we or other field observers (e.g., cooperating teachers) assess our students' display of behavior associated with these dispositions:

SMED 320 Classroom Interactions  
 SMED 470 Project-Based Instruction  
 MGE/SEC 490 Student Teaching

## Program Overview

- *Brief Program Description*

Students seeking certification in secondary mathematics education (grades 8-12) must complete both the science and mathematics education program (SMED) and the mathematics major. This combination of programs leads to a bachelor's degree with two majors: science/math education and mathematics. The SMED program is designed to give students sufficient pedagogical knowledge to teach math. The mathematics major requires 35 hours in mathematics beginning with Calculus and Analytic Geometry I. The program leads to initial certification for secondary mathematics teachers. A few initial professional education courses (SMED 101 and 102) are offered in Glasgow. Efforts are underway to extend the offering of these and other SMED courses to Owensboro and Elizabethtown. With rare exceptions, content courses are taught on the main WKU campus.

- *Standards Addressed by Program*

Kentucky Teacher Standards  
 National Council of Teachers of Mathematics Standards

### A. Content Standards

#### 1. Course Descriptions

- *Core Education Courses*

**SMED 101 - Introduction to Inquiry-Based Approaches to Teaching (1 hour):** Introduction to theory and practice necessary to design and deliver high quality inquiry-based math and science instruction. Students explore and practice the guided inquiry process; create lesson plans and implement them during visits to elementary classrooms. Fieldwork required; students are responsible for arranging their own transportation to sites.

**SMED 102 - Introduction to Inquiry-Based Lesson Design (2 hours):** Further exploration of inquiry-based learning experiences, developing skills designing, teaching, analyzing, and assessing inquiry-based math and science lessons. Students design lesson plans and implement them during visits to middle school classrooms. Fieldwork required; students are responsible for arranging their own transportation.

**SMED 210 - Knowing and Learning in Mathematics and Science (3 hours):** Introduction to theories and principles of cognition and learning with emphasis on knowing and learning in math and science. Introduction to research on learning, memory, individual development, motivation and intelligence. Applications of learning theory will be explicitly tied to design of lesson plans, instruction and assessment.

**SMED 320 - Classroom Interactions (3 hours):** Designed to expand student's abilities to understand how learning theories are applied in instructional settings as students develop, implement and evaluate activities and strategies for teaching diverse students equitably. Fieldwork required; students are responsible for arranging their own transportation to sites.

**EXED 330 - Diversity in Learning (3 hours):** Characteristics of exceptionalities, special education programs, schools, and community resources and research relative to exceptionalities. Field experiences in public schools and/or other appropriate settings away from campus are required in this course. Students are responsible for arranging their own transportation to designated or assigned sites.

**SMED 340 - Perspectives on Science and Mathematics (3 hours):** Introduction to the historical, social, and philosophical implications of math and science through investigations of pivotal experiments and findings. Includes integrated laboratory experiences that replicate significant discoveries.

**SMED 360 - Research Methods for Math and Science Teachers (3 hours):** Laboratory-based introduction to the tools and techniques used by scientists and mathematicians to further an understanding of the natural world and application of this knowledge to math and science education. Students will design and carry out laboratory investigations, and present written and oral reports of the results.

**SMED 470 - Project-Based Instruction (3 hours):** Methods, techniques, and technologies used to implement and assess problem-based investigations in math and science classrooms. Fieldwork required; students are responsible for arranging their own transportation to sites.

**SMED 489 - Student Teaching Seminar (3 hours):** Provides a bridge between the theory and practice of math and science teaching. Methods, techniques, technologies and issues pertinent to math and science instruction in middle grade and secondary classrooms. Field experiences in public schools and/or other appropriate settings away from campus are required. Pre-service Teachers are responsible for their own transportation to designated or assigned sites.

**MGE/SEC 490 – Student Teaching (10 hours):** This is a 12-week assignment in a middle or secondary school classroom as a part of the Professional Semester taken in the senior year.

- *Core Content Courses*

**MATH 136: CALCULUS I (4 HOURS)**

Prerequisites: Four years of high school mathematics including Algebra II, geometry, trigonometry, and satisfactory scores on Math Placement Exam and Math Placement Trig Exam; or MATH 117 or MATH 118, with grade of C or better. A course in one variable calculus including topics from analytic geometry. Limits, derivatives, integration, and applications of polynomial, rational, trigonometric and transcendental functions. Includes lecture and recitation. (Graphing calculator required.)

**MATH 137: CALCULUS II (4 HOURS)**

Prerequisite: MATH 136 with a grade of C or better. A second course in one-variable calculus including topics from analytic geometry. Methods of integration, sequences and series, polar and parametric functions. Includes lecture and recitation.

**MATH 237: MULTIVARIABLE CALCULUS (4 HOURS)**

Prerequisite: MATH 137 with a grade of C or better. Topics in real-valued functions of several variables including directional derivatives, implicit functions, gradient, Taylor's Theorem, maxima, minima, and Lagrange multipliers. Differential calculus of vector-valued functions including chain rule and Inverse Function Theorem. Multiple integrals, line integrals, surface integrals, Stokes' and Green's Theorems.

**MATH 304: FUNCTIONS, APPLICATIONS, AND EXPLORATIONS (3 HOURS)**

In-depth study of mathematical topics that are used in teaching pre-calculus and transition-to-calculus courses at the secondary school level. Modeling with linear, exponential, and trigonometric functions; curve fitting; discrete and continuous models.

**MATH 307: INTRODUCTION TO LINEAR ALGEBRA (3 HOURS)**

Prerequisite: MATH 227 or MATH 232. Systems of linear equations, matrix algebra, vector spaces, inner product spaces, linear transformations, eigenvectors, quadratic forms.

**MATH 310: INTRODUCTION TO DISCRETE MATHEMATICS (3 HOURS)**

Prerequisite: MATH 227 or MATH 232. Introduction to discrete topics. Development of skills in abstraction and generalization. Set theory, functions and relations, mathematical induction, elementary propositional logic, quantification, truth tables, validity; counting techniques, pigeonhole principle, permutations and combinations; recurrence relations and generating functions; elementary graph theory, isomorphisms, trees.

**MATH 317: INTRODUCTION TO ALGEBRAIC SYSTEMS (3 HOURS)**

Prerequisites: MATH 307 and MATH 310. Introduction to groups, rings, polynomial rings, integral domains, and fields.

**MATH 323: GEOMETRY I (3 HOURS)**

Prerequisite: MATH 307 or permission of instructor. Beginning with a re-examination of elementary Euclidean geometry, the course includes a study of absolute plane geometry and the parallel postulate, which leads to an axiomatic treatment of hyperbolic geometry and related topics.

**MATH 498: SENIOR SEMINAR (3 HOURS)**

Prerequisites: MATH 317 and MATH 327 and senior standing, or permission of instructor. Students will study articles in current mathematical journals or undertake independent investigations in mathematics. Written and oral presentations are required.

**STAT 301: INTRODUCTORY PROBABILITY AND APPLIED STATISTICS (3 HOURS)**

Prerequisite: MATH 136. A calculus-based introduction to applied statistics, with emphasis on analysis of real data. Curve fitting, probability models, estimation and testing for means and proportions, quality control; use of computers for data analysis and simulation.

**RESTRICTED ELECTIVES (3 HOURS REQUIRED)**

**MATH 405: NUMERICAL ANALYSIS I (CS 405) (3 HOURS)**

Prerequisites: MATH 307 or 310 or 327, and CS 230 or CS 240 or permission of instructor. Computer arithmetic, roots of equations, polynomial approximation and interpolation, numerical differentiation and integration. Computer solutions of problems will be required.

**MATH 406: NUMERICAL ANALYSIS II (3 HOURS)**

Prerequisites: MATH 307, 327, 331, and either MATH 405 or CS 405. The solution of linear systems by direct and iterative methods, matrix inversion, the calculation of eigenvalues and eigenvectors of matrices. Initial and boundary value problems in ordinary differential equations. Computer solution of problems will be required.

**MATH 409: HISTORY OF MATHEMATICS (3 HOURS)**

Prerequisite: Six hours of approved mathematics courses at the 300 and/or 400 level or permission of instructor. History of mathematics from ancient times through the development of calculus, with emphasis on famous problems. Provides knowledge and appreciation useful in the classroom. This course cannot be accepted as part of the 35-hour requirement for the non-certifiable mathematics major. Term

papers will be required.

**MATH 415: ALGEBRA AND NUMBER THEORY (3 HOURS)**

Prerequisite: MATH 315 or 317. An integrated survey of modern algebra and number theory. Topics include number systems, divisibility, congruences, groups and their application to number theory.

**MATH 417: ALGEBRAIC SYSTEMS (3 HOURS)**

Prerequisite: MATH 317. Theory of groups.

**MATH 421: PROBLEM SOLVING FOR SECONDARY TEACHERS (3 HOURS)**

Prerequisites: MATH 307 and 310; MATH 329 and 323, or permission of instructor. Utilizes various techniques and technology to solve mathematical problems. Integrates concepts from algebra, geometry, trigonometry, probability, statistics, number theory, discrete mathematics, linear algebra, and calculus.

**MATH 423: GEOMETRY II (3 HOURS)**

Prerequisite: MATH 323. An axiomatic development of hyperbolic geometry based on the hyperbolic parallel postulate and the absolute geometry developed in MATH 323, including an emphasis on contrasts with Euclidean geometry.

**MATH 431: INTERMEDIATE ANALYSIS I (3 HOURS)**

Prerequisite: MATH 317. Topics chosen from cardinality, limits, continuity, elementary topological concepts, sequences and series, differentiation and integration, elementary functional analysis.

**MATH 435: PARTIAL DIFFERENTIAL EQUATIONS (3 HOURS)**

Prerequisites: MATH 307, 327 and 331. Equations of first and second order; elliptic, hyperbolic and parabolic equations; Sturm-Liouville theory; applications to equations of mathematical physics using separation of variables and Fourier series.

**MATH 439: TOPOLOGY (3 HOURS)**

Prerequisite: MATH 317 or permission of instructor. Topological spaces, mappings, separation axioms, compactness, connectedness, arcwise connectedness, metric spaces.

**MATH 450: COMPLEX VARIABLES (3 HOURS)**

Prerequisite: MATH 327. Complex number plane, analytic functions of a complex variable, integration, power series, calculus of residues, conformal representation, applications of analytic function theory.

**MATH 470: INTRODUCTION TO OPERATIONS RESEARCH (3 HOURS)**

Prerequisite: MATH 307 and 327 or permission of instructor. Principles and techniques of operations research including linear programming, integer programming, quality theory, sensitivity analysis, and dynamic programming.

**MATH 475: SELECTED TOPICS IN MATHEMATICS (1-3 HOURS)**

Prerequisite: Permission of instructor. A consideration of special topics to acquaint the advanced undergraduate student with significant problems and developments of current interest in mathematics. Topics may vary each semester offered.

**MATH 482 PROBABILITY AND STATISTICS II**

Prerequisite: MATH 237 and MATH 329. Multivariate probability distributions; sampling distributions, statistical inference; point and interval estimation, properties of estimators; hypothesis testing; regression and correlation; analysis of variance; non-parametric methods.

## 2. Standard Alignment Matrices

- *Program Alignment to Kentucky Teacher Standards*

Appendix B contains our Program Assessment Plan. The “Critical Performance Assessment Alignment Matrix” describes the assessments that our program uses to measure candidate progress toward the Kentucky Teacher Standards.

- *Program Alignment to Learned Society Standards: National Council of Teachers of Mathematic*

Table 1 demonstrates the alignment of our content courses with our learned society standards.

LEARNED SOCIETY STANDARDS National Council of Teachers of Mathematics	Table 1. Core Content Course Alignment to Learned Society Standards									
	MATH 136	MATH 137	MATH 304	MATH 307	MATH 310	MATH 317	MATH 323	MATH 237	MATH 498	STAT 301
<b>Standard 1: Knowledge of Mathematical Problem Solving</b>	X	X	X	X	X	X	X	X	X	X
<b>Standard 2: Knowledge of Reasoning and Proof</b>					X		X			
<b>Standard 3: Knowledge of Mathematical Communication</b>			X						X	
<b>Standard 4: Knowledge of Mathematical Connections</b>	X	X	X		X			X	X	X
<b>Standard 5: Knowledge of Mathematical Representations</b>			X							X
<b>Standard 6: Knowledge of Technology</b>	X	X	X	X			X	X	X	X
<b>Standard 7: Dispositions*</b>										
<b>Standard 8: Knowledge of Mathematics Pedagogy*</b>										
<b>Standard 9: Knowledge of Numbers and Operations*</b>				X						
<b>Standard 10: Knowledge of Different Perspectives on Algebra</b>	X		X	X		X				
<b>Standard 11: Knowledge of Geometries</b>							X			
<b>Standard 12: Knowledge of Calculus</b>	X	X						X		
<b>Standard 13: Knowledge of Discrete Mathematics</b>					X					
<b>Standard 14: Knowledge of Data Analysis, Statistics and Probability</b>										X
<b>Standard 15: Knowledge of Measurement</b>			X							
<b>Standard 16: Field-Based Experience*</b>										

\*These standards are specifically addressed in Education courses. Please see the syllabi in the appendices and the list below.

Dispositions in mathematics: SMED 102, 320, 470, SEC 490; Knowledge of Mathematics Pedagogy and Number and Operations: SMED 102, 210, 360, 470; Field-Based Experience: SMED 102, 320, SEC 490.



### 3. Courses/Experiences that Address the Professional Code of Ethics

In order for candidates to be admitted into WKU's initial teacher preparation programs, they must first attend a Teacher Orientation during which the EPSB's Professional Code of Ethics is discussed. At the conclusion of the orientation, candidates must sign that they have read and are committed to upholding the code of ethics.

In addition, the introductory education courses, SMED 102, SMED 320 and SMED 470, provide opportunities for candidates to discuss professional ethics.

#### B. KERA Initiatives

The Combined Curriculum Document (CCD), located at the following url:

<http://www.education.ky.gov/KDE/Instructional+Resources/Curriculum+Documents+and+Resources/Teaching+Tools/Combined+Curriculum+Documents/>, is a resource created by the Kentucky Department of Education to show the connection between the Academic Expectations (what students should know and be able to do as a result of their school experience), the Program of Studies (the minimum required content standards students shall be taught to meet the high school graduation requirements), and the Core Content for Assessment (the content that is appropriate to be included on the state assessment). Table 2 describes how we introduce our candidates to the CCD through our education preparation program and how we ensure our candidates are prepared to teach these concepts to meet the KDE curriculum requirements in their future classrooms.

<b>Course</b>	<b>Academic Expectations</b>	<b>Core Content for Assessment</b>	<b>Program of Studies</b>
<b>SMED 101</b>	The student will be able to (SWBAT) plan, organize, and teach a 5-E lesson related to mathematics or science in an elementary classroom	5-E Lesson Planning using appropriate CCD documents for mathematics and science teaching in elementary classrooms	All 5-E inquiry lessons in mathematics and/or science that SMED 101 students plan, organize, and teach are based on the Kentucky Core Content for Assessment
<b>SMED 102</b>	The SWBAT plan, organize, and teach a 5-E lesson related to mathematics or science in a middle school classroom	5-E Lesson Planning using appropriate CCD documents for mathematics and science teaching in middle school classrooms	All 5-E inquiry lessons in mathematics and/or science that SMED 102 students plan, organize, and teach are based on the Kentucky Core Content for Assessment
<b>SMED 210</b>	The SWBAT conduct an interview during a problem solving event and analyze the processes used as an indication of how people learn mathematics and science and developmentally appropriate use of content	Planning inquiry-based instruction that links to developmentally appropriate CCD documents for elementary, middle, and high school instruction	Inquiry-based lesson planning is related to how people learn and based on content that is developmentally appropriate for each level of instruction
<b>SMED 320</b>	The SWBAT plan, organize, and teach two 5-E lessons related to	5-E Lesson Planning using appropriate CCD documents for	All 5-E inquiry lessons in mathematics and/or science that SMED 320

	mathematics or science in a high school classroom	mathematics and science teaching in high school classrooms	students plan, organize, and teach are based on the Kentucky CCD
<b>SMED 340 Perspectives</b>	The SWBAT plan, organize, and teach an interdisciplinary middle school unit (using the 5E model) that incorporates the history of science or mathematics.	5-E Lesson Planning using appropriate CCD documents for mathematics and science teaching in middle school classrooms	Interdisciplinary lessons in mathematics and/or science that SMED 340 students plan, organize, and teach are based on the Kentucky Core Content for Assessment
<b>SMED 360 Research Methods</b>	The SWBAT plan, organize, and conduct four scientific research projects with related statistical analyses of the findings and do presentations of findings using appropriate technologies	Planning and conducting scientific research and using statistics to appropriately interpret findings in alignment with the <i>Big Ideas</i> represented in the CCD	Research Projects designed and conducted as part of SMED 360 teach and reinforce the <i>Big Ideas</i> of scientific thinking and use of statistics included in the Kentucky Core Content for Assessment
<b>SMED 470 Project Based Instruction</b>	Using Project Based Laboratory design principles, the SWBAT plan, organize, and teach an interdisciplinary, three to four-week project-based laboratory unit for secondary math and/or science courses.	5-E Lesson Planning using appropriate CCD documents for mathematics and science teaching in high school classrooms	Problem Based Laboratory units designed in mathematics and/or science that SMED 470 students plan, organize, and teach are based on the Kentucky Core Content for Assessment
<b>SMED 489 Student Teaching Seminar</b>	Students develop a Teacher Work Sample (TWS) which includes at least eight lessons based on the AE, CC, and POS. Students must reflect on the teaching of the unit and analyze student learning of content.	Students develop a Teacher Work Sample (TWS) which includes at least eight lessons based on the AE, CC, and POS. Students must reflect on the teaching of the unit and analyze student learning of content.	Students develop a Teacher Work Sample (TWS) which includes at least eight lessons based on the AE, CC, and POS. Students must reflect on the teaching of the unit and analyze student learning of content.

### C. EPSB Themes

Our program is committed to graduating education professionals who are prepared to work with diverse students, to assess student learning, to understand the importance of literacy across the curriculum, and to close the achievement gap. Table 3 below delineates the courses in our program that ensure that education candidates are prepared in these areas.

<b>Table 3: How Program Addressed EPSB Themes</b>					
<b>COURSES</b>	<b>EPSB Themes</b>				<b>How Course Addresses Theme</b>
	<b>Diversity</b>	<b>Assessment</b>	<b>Literacy</b>	<b>Closing Achievement Gap</b>	
<b>SMED 101</b>		x		x	Candidates learn about inquiry-based teaching, aligning instruction with National and State standards for assessments, and strategies for achieving instructional equity of all students.
<b>SMED 102</b>		x		x	Candidates use inquiry-based standards aligned with Kentucky Core Content Documents to design and teach multiple lessons to middle school science and mathematics classes. Candidates must strive for instructional equity, use pre- and post-assessments, provide instructive feedback to peers and students, and to reflect on lesson effectiveness and revise as necessary.
<b>SMED 210</b>	x	x	x		Candidates use clinical interviews to make sense of someone's reasoning about a math or science topic to elucidate how people learn. Candidates investigate the various standards for knowing and learning and the implications of the various standards for assessment, plan and teach a lesson designed to improve literacy in mathematics and science specifically, and investigate ways of knowing and learning that differ from the cultural background in which they learned science and mathematics.
<b>SMED 320</b>	x	x	x	x	Candidates compare different methods of assessment and the impact each has on teaching and learning, investigate pedagogical implications of students with special needs, specifically address the needs of all learners as they plan for instruction, and focus on specific strategies for addressing science and mathematics literacy as part of their instruction for each lesson
<b>EXED 330</b>	x				Candidates learn to make adaptations for special needs students when planning and implementing instruction.
<b>SMED 340</b>	x				Candidates learn about multiple cultural perspectives in the history of mathematics and science. Candidates plan and teach an interdisciplinary unit incorporating math and science conceptual understandings and their historical evolution.
<b>SMED 360</b>			x		Candidates conduct actual research and study the methodologies necessary for reliability and validity of research. Candidates develop scientific and mathematical

					literacy (gathering data, analyzing statistics, reading and understanding statistical reports) required of all for informed understanding and decision making with regard to scientific research.
<b>SMED 470</b>		x		x	Candidates plan and conduct a multi-week unit of science or mathematics instruction in a wet lab or in the field. Candidate units include appropriate pre-, formative, and post- assessments in order to monitor and adjust instruction so that all students will demonstrate mastery of the content.
<b>SMED 489</b>	x	x	x	x	Candidates take this culminating seminar during their student teaching experience. Candidates design and implement a unit of study and then assess and reflect on student learning.
<b>SEC 490</b>	x	x	x	x	Student teaching course where students create a professional development portfolio and are evaluated on all Kentucky Teacher Standards.

**D. Program Faculty**

See Table 4 on the next page.

**Table 4: Education and Content Faculty Information**

Faculty Name	Highest Degree, Field, & University	Assignment: Indicate the role(s) of the faculty member <sup>1</sup>	Faculty Rank <sup>2</sup>	Scholarship <sup>3</sup> , Leadership in Professional Organizations, and Service <sup>4</sup> : List up to 3 major contributions in the past 3 years <sup>5</sup>	Teaching or other professional experience in P-12 schools	Status to institution & education unit <sup>6</sup>
Almand, David	MS, Mathematics, WKU	Master Teacher	Practitioner in Residence	*Keynote Speaker / Consultant for Sumner County (TN) Math Conferences (2008-Present) -- Working with MS / HS Math teachers on curriculum alignment, instructional strategies, and formative assessment. *Mentor for teachers Simpson County (2008-Present) -- Working with Elem / MS / HS Math teachers on units of study and instructional / assessment strategies *Leadership role in numerous GRREC initiatives (2004-2008) -- Thoughtful Education, Rigor & Relevance, Power Standards, etc.	Middle School/High School Mathematics teacher – 16 years, and school administrator - 10 years in Simpson County	FT/FT
Bateiha, Summer	Ph.D. Candidate (degree expected May 2010) Instructional Leadership and Academic Curriculum, Mathematics Education, U of Oklahoma	Mathematics Faculty	Assistant Professor	Bateiha, S. (1009). Book Review: Mathematics on the Internet: A resource for K-12 teachers (3 <sup>rd</sup> ed). <i>Oklahoma Journal for School Mathematics</i> , (1), 16-17. Bateiha, S. (In Press). Teaching social justice mathematics across all grade levels. <i>Oklahoma Journal for School Mathematics</i> . Conference Presentation: Bateiah, S. (June 2010) Rewriting traditional mathematics problems into inquiry-based ones, Oklahoma Council for Teachers of Mathematics. Oklahoma City, Oklahoma	Private tutor in mathematics 1999-2008	FT/FT
Bayless, Juanita	Ed.D, Educational Psychology, Northern Illinois	Faculty	Associate Dean	*Continued, active member of two distinct P-16 councils specifically looking at improved alignments with post-secondary education. *Continued work to facilitate a Dual Credit option for surrounding high school students to take college level courses at WKU-Glasgow. Developed and implemented this program which has now increased	Special Education Teacher - 5 years Fourth Grade Teacher - 1 year	FT/PT

<sup>3</sup> *Scholarship* is defined by NCATE as systematic inquiry into the areas related to teaching, learning, and the education of teachers and other school personnel. Scholarship includes traditional research and publication as well as the rigorous and systematic study of pedagogy, and the application of current research findings in new settings. Scholarship further presupposes submission of one's work for professional review and evaluation.

<sup>4</sup> *Service* includes faculty contributions to college or university activities, schools, communities, and professional associations in ways that are consistent with the institution and unit's mission.

<sup>5</sup> For example, three contributions of scholarship, leadership, and service might be 1) Scholarship - article published in a specific journal, 2) Leadership - officer of a state or national association, and 3) Service - an evaluation of a local school program. NOTE: You MUST provide evidence of SCHOLARSHIP.

				<p>to include 8 area high schools.</p> <p>*Serve on Advisory Council for Barren County High School Gear Up Class of 2012</p> <p>*Provided leadership in growth of WKU-Glasgow Regional Campus including expanded access to Middle Grades Education Curriculum and Early Childhood. The campus has had an enrollment growth of 22% in the last five years.</p> <p>*Standing member of the WKU Enrollment Management and Calendar committees.</p>		
Bonham, Scott	Ph.D, Physics, U of Illinois Post Doc, Physics Ed, N.Carolina State	Faculty	Associate Professor	<p>*"Whole class laboratories with Google Docs," Scott Bonham, The Physics Teacher (accepted);</p> <p>"Latent Response Times and Cognitive Processing on the FMCE," Proceedings of the 2008 Physics Education Research Conference, (2008) pp. 75-78.</p> <p>"Reliability, Compliance and Security in Web-based Course Assessments," Scott Bonham, Phys. Rev. ST Phys. Ed. Research, 4 (2008) p. 01010.</p> <p>*PI on UTeach Replication grant</p> <p>*Member of the Research in Physics Education Committee of the American Association of Physics Teachers</p>		FT/PT
Davenport, Janice	MA, Education, WKU	Master Teacher	Practitioner in Residence	<p>*Science Vertical Alignment Chair – Glasgow City Schools</p> <p>*Team leader for GRECC Math Science Team grant</p> <p>*Middle School Teacher of the Year – Glasgow City Schools</p>	Middle School Science teacher, Glasgow Schools, 30+ years	PT/PT
Day, Martha	Ed.D, Educational Admin, Tennessee State	Faculty	Assistant Professor	<p>National Science Teachers Association Urban Science Education Advisory Board, Committee Appointment, Term Duration 2010-2013, <a href="http://www.nsta.org">www.nsta.org</a> Center for Compact and Efficient Fluid Power: A National Science Foundation Engineering Research Center <a href="http://www.ccefp.org/index.php">http://www.ccefp.org/index.php</a>, Education Advisory Board Member, January 2007-January 2010 Faculty Advisor: Kappa Delta Pi, Student Chapter at Western Kentucky University, August 2009-present Textbook Editor: <u>Holt Biology 2008</u>, Holt, Rinehart, Winston, Chapters 8, 9, 19, 23, 2005-2006</p> <p>Day, M. &amp; Reedy, V. (2010). Research Experiences for Teachers at Vanderbilt University, National Science Teachers Convention, Philadelphia, Pennsylvania</p> <p>Day, M. (2009). Engaging Learners In Inquiry-Modeling and Teaching the Process of Science, Utah Science Teachers Convention, South Jordan, Utah</p> <p>Day, M. (2007). Tennessee Wildfire Prevention, Short Course, Tennessee Science Teachers Association Convention, Nashville, TN, Fall 2007</p> <p>Stobaugh, R., Day, M., Tassell, J. &amp; Sabat, K. (2010, In review). Boosting Cognitive Complexity in Science Assessment Questions, <u>Journal of Science Teacher Education</u>.</p> <p>Day, M. (2006). Cancer Biology Legacy Cycle Teaching Module,</p>	High School science teacher (15 years) and assistant principal, Nashville Public Schools; 8/1994-6/2008	FT/FT

				Vanderbilt University Biomedical Engineering Research Experiences For Teachers, 28 pp.		
Duffin, Lisa	Ph.D, Educational Psychology, Purdue	Faculty	Assistant Professor	<p>* Duffin, L.C., French, B.F., &amp; Patrick, H. (2010, March). Pre-service teachers' efficacy: A confirmatory factor analysis on scores from the Teachers' Sense of Efficacy Scale. Presented at the Annual Meeting for the American Educational Research Association, Denver, CO.</p> <p>*Duffin, L.C., &amp; Patrick, H. (in preparation). Motivating students to learn: How efficacious are pre-service teachers and what do they know?</p> <p>*Duffin, L.C., French, B.F., &amp; Patrick, H. (in preparation). A confirmatory factor analysis of pre-service teachers' scores from the Teachers' Sense of Efficacy Scale.</p> <p>*Patrick, H., Anderman, L.H., Bruening, P.S., &amp; Duffin, L.C. (under review). The role of educational psychology in teacher education: Three challenges for educational psychologists. <i>Educational Psychologist</i>.</p>	Kindergarten science – Teacher Assistant/Co-Teacher as part of the Scientific Literacy Project: Enhancing Young Children's Scientific Literacy Through Reading and Inquiry-Centered Adult-Child Dialogue, IES #R305K050038. P. Mantzicopoulos PI, Co-PI's H. Patrick, & A. Samarapungavan, College of Education, Department of Educational Psychology, Purdue University; 2005-2007.	FT/PT
Erbach, David	Ph.D., Mathematics, Cambridge U	Co-director Faculty	Professor	New to WKU in 2009, HS Science Olympiad KY State event coordinator – Wright Stuff, Grand Judge, Intel International Science and Engineering Fair, 2006		FT/PT
Marchionda, Hope	Ph.D., Mathematics Education, Clemson University	Mathematics Faculty	Assistant Professor	<p>Principal Investigator: WKU Science and Mathematics Recruiting and Retention of Teachers (WKU SMARRT), Robert Noyce Teacher Scholarship Program, 0934804, National Science Foundation, \$898,781, Funded. (award June 16, 2009).</p> <p>Partner: K-5 Math Alliance, Kentucky Department of Education Grant, Grant Coordinator: Liz Story (2008-present); Partner: K-82: An Expanded Alliance, Kentucky Department of Education Grant, Grant Coordinator: Liz Story (2007-present)</p> <p>Association of Mathematics Teacher Educators, January 2010 “Moving Beyond Word Problems -- What is true Problem Solving?” with Janet Tassell, and Travis Olson.</p>	Mathematics Teacher for 2 ½ years at Batavia High School, Batavia, IL and La Serna High School, Whittier, CA	FT/PT
Metzgar, Vicki	Ed.D, Educational Leadership, Vanderbilt	Co-director Faculty	Associate Professor	<p>*National Academy for Science and Mathematics Educational Leadership (2006-2007) WestEnd Regional Educational Laboratory Participant</p> <p>*School for Science and Mathematics at Vanderbilt-Development team and Liaison for School for Science and Math with Metro Nashville Public Schools</p> <p>*Improving Teacher Quality Grant recipient Tennessee Dept. of Education for Teacher Training Summer 2008 (Managing your Science Classroom Lab Efficiently)</p> <p>*Courage to Teach: Facilitated a two-year series of retreats for David Crockett High School faculty in Washington county,</p>	Middle School, High School teacher and Science Coordinator Metro Nashville Public Schools; 10/1975-6/2004	FT/PT

Moody, Vivian	Ph.D., Mathematics Education, University of Georgia	Mathematics faculty	Associate Professor	Tennessee. March 2007-January 2009 <i>What Mathematics Kentucky Pre-Service Middle School Teachers Are Expected to Know</i> , 2007 Annual Meeting of the Association of Mathematics Teacher Educators, Irvine, CA, January 2007 (with William S. Bush and Maggie McGatha). <i>Co-Chair</i> , Algebra I Working Group, Secondary Formative Assessment Project, (Dr. Bill Bush Project Director), in collaboration with the Kentucky Department of Education, 2009-present. <i>Reviewer</i> , Manuscripts submitted for publication, <i>Journal for Research in Mathematics Education</i> , NCTM, 2001-present. Principal Investigator. <i>African-American Students’; Voices on Succeeding in Mathematics</i> . (2002-2003). Principal Investigator; <i>Project VOICE: Listening to African-American Mathematics Students’ Voices About Their Mathematical Experiences</i> . (1999-2001). Principal Investigator; <i>RAAME--Research on African-American Students’ Mathematical Experiences</i> . (1998-1999 (Co-Principal Investigator with Patricia S. Moyer).	High School Mathematics Teacher (5 years), Perry Central High School, Mississippi; <i>African-American Mathematics Students’ Voices</i> . (Summer, 2003).	FT/FT
Rudloff, Melissa	M.A., Math/Science Area, WKU	Master Teacher	Practitioner in Residence	*Presenter at CPE Conference (May 2009) and UTeach Conference (May 2009) on instructional strategies implemented through SKyTeach *Session leader for the WKU-Minority Leadership Camp (June 2009) *Kentucky Science Olympiad Event Coordinator (2005,2010) *Professional development provider for Explore & MSP grants for middle school science teachers (ongoing)	High School Physics & Math teacher – 13 years, Greenwood High School	FT/FT
Tassell, Janet	Ph.D., Mathematics Ed Indiana	Faculty	Assistant Professor	*Kloosterman, P., Tassell, J. L., Essex, K., and Ponniah, A. (2008). Perceptions of Mathematics and Gender. <i>School Science and Mathematics</i> , 108, 149-162. *Tassell, J., Bishop, T. (October, 2008). <i>Using Locally Developed Formative Benchmarks and Assessments to Improve Student Learning</i> . Paper presented at National Evaluation Institute CREATE Conference, Wilmington, NC. Grants: *Provost PIE Grant – Math Comic Books *Javits Grant – The Center for Gifted Studies Leadership: SKyTeach Steering Committee *Middle Grade EPSB Folio Co-Chair for development	High School Math Teacher, Indiana, fall 1991-spring 1998	FT/FT
Tyler, Rico	M.A., Secondary Education in Physics, WKU	Master Teacher	Practitioner in Residence	*Currently co-PI of a National Science Foundation funded Math Science partnership grant (\$504,000) researching the causes of low Explore math and science scores in Kentucky middle schools and examine way to better prepare middle grade students to take rigorous math and science courses in high school *Keith Andrew, Rico Tyler, Roger Scott, Larry Byrd, Karen Hackney, Richard Hackney “CCD Imaging of the Spectrum of Vega”. Presented	High School Physics Teacher & Science Chair, Simpson County, KY, 1987-2002 Astronomy Instructor for the Kentucky Governor’s Scholars Program (high	FT/FT



				at the Kentucky Academy of Sciences meeting Oct. 2006 *Leadership: Board Member – Ky Science Teacher Association; Vice President – Barren River Imaginative Museum of Science *Service: *Project Manager for the Sextant Program; Director of the Hilltopper Teaching Fellows Program; Lead Science advisor for the MS-TEAMS program	school juniors)	
Weidemann, Wanda	Ed.D. Mathematics Education, Vanderbilt University	Mathematics Faculty	Professor	Member, Kentucky Committee on Mathematics Achievement (instituted by KY Legislature, 2002) Presentation: Olson, Travis; Marchionda, Hope; Tassell, Janet; & Weidemann, Wanda (Jan. 2010) “Mathematics Content Courses for Elementary and Middle Grades Teachers: Identifying the Necessary and the Sufficient. , Association of Mathematics Teacher Educators, Pomona, CA <i>Co-Chair</i> , Algebra I Working Group, Secondary Formative Assessment Project, (Dr. Bill Bush Project Director), in collaboration with the Kentucky Department of Education, 2009-present	High School Mathematics Teacher, 1978-85 & Middle School 1977-78 Russellville Independent Schools, KY Governors’s Scholars Program 1984, 1985	FT/FT

**E. WKU Curriculum Contract**

See next pages.



**CURRICULUM CONTRACT**

**Undergraduate Degree Program – B.S., Mathematics (Reference #728)  
Leading to Initial Teacher Certification (Rank III) in Secondary Mathematics Education, Grades 8-12**

**Admission Requirements:**

To be admitted into this program, candidates must meet all minimal criteria described on the “Transition Points” page under “Transition Point 1: Admission to Education Preparation Programs.”

<b>Science/Math Education Component—34 hours</b>		<b>Specialty Studies – Mathematics Major</b>		
SMED 101	1 hr.	<b>REQUIRED CORE MATHEMATICS COURSES (Total = 36 hrs)</b>		
SMED 102	2 hrs.	MATH 136	<b>4 hrs.</b>	
SMED 210	3 hrs.	MATH 137	<b>4 hrs.</b>	
SMED 320	3 hrs.	MATH 304	<b>3 hrs.</b>	
EXED 330	3 hrs.	MATH 307	<b>3 hrs.</b>	
SMED 340	3 hrs.	MATH 310	<b>3 hrs.</b>	
SMED 360	3 hrs.	MATH 317	<b>3 hrs.</b>	
SMED 470	3 hrs.	MATH 323	<b>3 hrs.</b>	
SMED 489	3 hrs.	MATH 237	<b>4 hrs.</b>	
SEC 490	10 hrs.	STAT 301	<b>3 hrs.</b>	
		MATH 498	<b>3 hr.</b>	
<b>General Education Component—44 hours</b>		STAT 310	<b>3 hrs.</b>	
See WKU catalog for guidance in selecting appropriate coursework to meet WKU’s General Education requirements.		<b>RESTRICTED ELECTIVES (Total = 3 hrs)</b>		
		MATH 405	<b>3 hrs.</b>	
		MATH 406	<b>3 hrs.</b>	
		MATH 409	<b>3 hrs.</b>	
		MATH 421	<b>3 hrs.</b>	
		MATH 423	<b>3 hrs.</b>	
		MATH 429	<b>3 hrs.</b>	
		MATH 431	<b>3 hrs.</b>	
		MATH 435	<b>3 hrs.</b>	
		MATH 439	<b>3 hrs.</b>	
		MATH 450	<b>3 hrs.</b>	
		MATH 470	<b>3 hrs.</b>	
		<b>Notes: All math majors are required to take either CS 230 or CS 180. A grade of C or better is required for all math courses.</b>		
		<b>Grand Total of Hours (Minimum Required)</b>		<b>120 hrs.</b>

**Mid-Point Assessment Requirements:**

To be admitted into the Student Teaching Semester, candidates must meet all minimal criteria described on the “Transition Points” page under “Transition Point 2: Admission to Final Experience.”

**Program Completion Requirements:**

- To complete this program, candidates must meet all minimal criteria described on the “Transition Points” page under “Transition Point 3: Program Exit.”
- Note that there are additional requirements described on the next page that must be met in order to be recommended for initial certification.

3. Rules and regulations governing the completion of this program of study have been described above and on the next page. By signing below, you are acknowledging that you understand and accept responsibility for meeting these requirements.

_____	_____ /
Candidate's Name (printed)	Education Advisor's Signature/Date
_____ /	_____ /
Candidate's Signature/Date	Specialization Advisor's Signature/Date

**Delineation of Unit/Program Transition Points – Initial Preparation**

Transition Point 1: Admission to Education Preparation Programs			
Data Reviewed	Minimal Criteria for Admission/Continuation	Review Cycle	Reviewed By
Unit Level Data:		Each Month	Professional Education Council
▪ Admission Application	▪ Completion of application		
▪ Overall GPA	▪ 2.5+		
▪ Adherence to Professional Code of Ethics	▪ Candidate signature		
▪ Speech Proficiency	▪ C or higher in speech course		
▪ Writing Proficiency	▪ 2.5+ average, no course lower than C		
▪ Test Scores	▪ ACT (21+) or ▪ SAT (990+) or ▪ PPST (173 – M, 173 – R, 172 – W) or ▪ GRE (800+ and 3.5+ writing assessment) or ▪ GAP (2000+ and 3.5+ writing assessment)		
▪ Faculty Recommendations (Unit Dispositions)	▪ All positive		
Transition Point 2: Admission to Final Experience (e.g., Student Teaching, Clinical Practice, Culminating Assessment)			
Data Reviewed	Minimal Criteria for Continuation	Review Cycle	Reviewed By
Unit Level Data:		Each Semester	Professional Education Council
▪ Admission to Education Preparation	▪ Admission		
▪ GPAs	▪ 2.5+ overall ▪ 2.5+ professional education courses ▪ 2.5+ content courses		
▪ Semester Hours Completed	▪ 90+ hours (including 75% of content courses)		
▪ Dispositions Scores	▪ All dispositions average "At Standard" (3+)		
▪ Critical Performance Scores	▪ 3.0+ overall ▪ 2.5+ per Kentucky Teacher Standard measured		
Transition Point 3: Program Exit			
Data Reviewed	Minimal Criteria for Exit	Review Cycle	Reviewed By
Unit Level Data:		Each Semester	Office of Teacher Services
▪ Seminar Course Grade	▪ C or higher - based on Teacher Work Sample holistic score of 2+		
▪ Student Teaching Grade	▪ C or higher - based on 7+ Kentucky Teacher Standards at or above "Proficient" (3+), no Standard below "Developing" (2), AND 11+ dispositions "At Standard" (3+)		

**To be recommended for initial certification, an applicant must document:**

- Completion of an approved teacher preparation program in each desired certification area;
- Passing score(s) on the appropriate PRAXIS II exam(s) (e.g., Content, PLT) or other assessments required for each desired certification area;
- Achievement of at least a 2.5 GPA overall, in each major and minor, and in professional education courses;
- Attainment of at least a "C" in all professional education courses, including EDU 489 and student teaching; and
- Completion of a portfolio based on the Kentucky Teacher Standards.

**EPSB Disclaimer:** Teacher certification requirements are subject to change. Before registering for the test(s), please refer to the Education Professional Standards Board (EPSB) website at [www.epsb.ky.gov](http://www.epsb.ky.gov) for current requirements or contact Ms. Rice at 502-564-4606 or toll free 888-598-7667.

## F. Syllabi

The following education and content course syllabi associated with this program are available for review at <http://edtech.wku.edu/peu/course-syllabi-epsb.htm>:

### Science/Math Education Courses

SMED 101 - Introduction to Inquiry-Based Approaches to Teaching  
 SMED 102 - Introduction to Inquiry-Based Lesson Design  
 SMED 210 - Knowing and Learning in Mathematics and Science  
 SMED 320 - Classroom Interactions  
 EXED 330 - Diversity in Learning  
 SMED 340 - Perspectives on Science and Mathematics  
 SMED 360 - Research Methods for Math and Science Teachers  
 SMED 470 - Project-Based Instruction  
 SMED 489 - Student Teaching Seminar (*See EDU 489 syllabus.*)

### Required Mathematics Courses

MATH 136 – Calculus and Analytic Geometry I  
 MATH 137 – Calculus and Analytic Geometry II  
 MATH 304 – Functions, Applications and Explorations  
 MATH 307 – Linear Algebra  
 MATH 310 – Discrete Mathematics  
 MATH 317 – Introduction to Algebraic Systems  
 MATH 323 – Geometry I  
 MATH 237 – Multivariable Calculus  
 MATH 498 – Senior Seminar  
 STAT 301 – Introduction to Probability and Applied Statistics

### Restricted Electives

MATH 405 – Numerical Analysis I  
 MATH 406 – Numerical Analysis II  
 MATH 409 – History of Mathematics  
 MATH 415 – Algebra and Number Theory  
 MATH 417 – Algebraic Systems  
 MATH 421 – Problem Solving for Secondary Teachers  
 MATH 423 – Geometry II  
 MATH 429 – Probability and Statistics II  
 MATH 431 – Intermediate Analysis I  
 MATH 435 – Partial Differential Equations  
 MATH 439 – Topology  
 MATH 450 – Complex Variables  
 MATH 470 – Introduction to Operations Research  
 MATH 475 – Selected Topics in Mathematics

**APPENDIX A**



**Professional Education Unit**

**Conceptual Framework Core Beliefs**

# Conceptual Framework

(03032008 version)

## Mission

- The professional education unit of Western Kentucky University recruits, prepares, and supports school practitioners and education leaders who can facilitate the learning of all children and empower them to achieve at high levels as they become life-long learners and productive citizens in a global society.

## Vision

- The professional education unit aspires to become a nationally recognized community of scholars who apply the best that theory, research, and experience can contribute to teaching and learning and create new knowledge that makes teaching, learning, and the operation of school more efficient and effective.

### Beliefs About Children & Schools

#### BELIEF 1

**All children can learn at high levels.**

#### BELIEF 2

**All children have a right to a quality education that empowers them to meet high expectations for learning as defined by a democratic society.**

### Beliefs About Education Professionals

#### BELIEF 3

**Diversity in our schools adds richness to the learning environment and provides enhanced opportunities and possibilities for teaching and learning.**

#### BELIEF 4

**Highly effective education professionals require high levels of ability, rigorous training, and on-going development of teaching/leadership skills that include reflective decision-making.**

#### BELIEF 5

**Highly effective education professionals know, apply, and reflect on the effectiveness of a variety of theories, models and strategies in order to produce maximum learning for all students in all types of school contexts and cultures.**

#### BELIEF 6

**Highly effective education professionals interact with the home and/or community of their students to facilitate teaching and learning.**

#### BELIEF 7

**Highly effective education professionals have a strong content knowledge, sound pedagogical knowledge and skills, and essential dispositions for facilitating learning and functioning as team members in schools.**

- WKU has adopted the following knowledge and skills as key to the success of education professionals:

*Kentucky's Teacher Standards*

**Standard 1 – Content Knowledge:** Demonstrates a current and sufficient knowledge of certified content areas to develop student knowledge and performance in those areas

**Standard 2 – Designs/Plans:** Designs/plans instruction and learning climates that develop student abilities to use communication skills, apply core concepts, become self-sufficient individuals, become responsible team members, think and solve problems, and integrate knowledge

**Standard 3 – Learning Climate:** Creates a learning climate that supports the development of student abilities to use communication skills, apply core concepts, become self-sufficient individuals, become responsible team members, think and solve problems, and integrate knowledge

**Standard 4 – Implements/Manages:** Introduces/implements/manages instruction that develops student abilities to use communication skills, apply core concepts, become self-sufficient individuals, become responsible team members, think and solve problems, and integrate knowledge

**Standard 5 – Assessment:** Assesses learning and communicates results to students and others with respect to student abilities to use communication skills, apply core concepts, become self-sufficient individuals, become responsible team members, think and solve problems, and integrate knowledge

**Standard 6 – Technology:** Uses technology to support instruction; access and manipulate data; enhance professional growth and productivity; communicate and collaborate with colleagues, parents, and the community; and conduct research

**Standard 7 – Reflection:** Reflects on and evaluates specific teaching/learning situations and/or programs

**Standard 8 – Collaboration:** Collaborates with colleagues, parents, and other agencies to design, implement, and support learning programs that develop student abilities to use communication skills, apply core concepts, become self-sufficient individuals, become responsible team members, think and solve problems, and integrate knowledge

**Standard 9 – Professional Development:** Evaluates his/her overall performance with respect to modeling and teaching Kentucky's learning goals, refines the skills and processes necessary, and implements a professional development plan

**Standard 10 – Leadership:** Provides professional leadership within the school, community, and education profession to improve student learning and well-being



- WKU has adopted the following dispositions as key to the success of education professionals:

<i>Candidate Values...</i>	<i>As Demonstrated by...</i>
<i>Learning</i>	<b>Attendance</b> - Consistently attends class and is on time
	<b>Class participation</b> - Actively engaged and interested in the class activities
	<b>Class preparation</b> - Consistently comes to class well prepared
	<b>Communication</b> - Uses language to express ideas very effectively regardless of the age of the listener
<i>Personal Integrity</i>	<b>Emotional control</b> - Displays steady emotional temperament, is receptive to viewpoints of others and their suggestions
	<b>Ethical behavior</b> - Shows self to be a person of strong character
<i>Diversity</i>	Willingly works with others from different ability, race, gender, or ethnic groups
<i>Collaboration</i>	Actively seeks out and incorporates ideas of others and willingly works with others to improve the overall environment
<i>Professionalism</i>	<b>Respect for school rules, policies, and norms</b> - Knows school rules and policies, follows them consistently, understands the purpose of regulations and respects their intent
	<b>Commitment to self-reflection and growth</b> - Actively seeks suggestions and constructive criticism, regularly engages in learning through self-reflection
	<b>Professional development and involvement</b> - Makes use of information from professional organizations, professional publications, and educational resources
	<b>Professional responsibility</b> - Accepts responsibility for own actions and for helping all students learning and actively seeks self-improvement

BELIEF 8

**Highly effective education professionals utilize technology for teaching and learning, assessment management, and research to the greatest extent possible.**

**Beliefs About Assessment and Accountability**

BELIEF 9

**Highly effective education professionals hold themselves accountable for their own performance by collecting, analyzing, and reporting learning results and using this information to improve performance and programs.**

BELIEF 10

**Highly effective education units develop and maintain assessment systems that follow the continuous progress of candidates toward the achievement of high standards-based performance expectations that are clearly defined and publicly communicated.**

**Alignment Matrix: NCATE, Kentucky Teacher Standards, PEU Conceptual Framework, WKU Strategic Plans**

NCATE Relationship	Standard Source		WKU PEU Conceptual Framework		WKU Strategic Planning Documents	
			Conceptual Framework Standards/Values	Conceptual Framework Beliefs	Academic Affairs Strategic Plan (Objectives)	WKU Strategic Plan (Goals)
NCATE Content/Pedagogical Content Knowledge	Conceptual Framework Aligned with Kentucky Teacher Standards	KTS1	Content Knowledge	3,5,7	1a,1e,2e	2
NCATE Pedagogical Knowledge & Skills		KTS 2	Designs/Plans	1-3,5,7	1e	1
		KTS 3	Learning Climate	1-3,7	1e	1
		KTS 4	Implements/Manages	2,3,5,7	1e	1
		KTS 5	Assessment/Evaluation	1,2,4,6,7,9	1e	1
		KTS 6	Technology	5,7-9	1g,3b	1,3
		KTS 7	Reflection	5,7-9	1a,1e	1
		KTS 8	Collaboration	1-3,6	4b	4
		KTS 9	Professional Development	4,5,7,9	3b	3
		KTS 10	Leadership	1,2,4,5,7,9	1b,d	1
	NCATE Dispositions	KTS 2-4	Dispositions	1-3,5-7,9	1a-c	1
NCATE Standard 3	Conceptual Framework		Field Experiences & Clinical Practice	3,5,6	1e	1
NCATE Standard 4		KTS 2-4	Diversity	1-3,6	1b,1c,2g,2h,3d	1-3
NCATE P-12 Learning			Impacts P-12 Student Learning	5,8,9	1b	1

## APPENDIX B



### **Professional Education Unit**

## **Program Assessment Plan – Initial Preparation**

**Name of Preparation Program: Mathematics Education**

**Date Completed: March 26, 2010**

**Date Submitted: March 26, 2010**

**Submitted By: Wanda Weidemann & Vicki Metzgar**

**Plan Version: 03032008**

WKU PROFESSIONAL EDUCATION UNIT WIDE CONTINUOUS ASSESSMENT MATRIX - INITIAL PREPARATION											
	Component 1: Admission Data		Component 2: Course Based Assessment Data	Component 3: Clinical Experiences Data		Component 4: Culminating Assessment Data		Component 5: Exit and Follow Up Data			
Conceptual Framework Standards/Values	Faculty Recs	KY REQ's	Critical Performances	Early Clinical Experiences	Final Clinical Experience	Final Clinical Evaluation	Capstone Assessment (TWS)	Exit Survey	Praxis II	Alumni Survey	Employer Survey
Content Knowledge		Various Data Required by State for Admission into Teacher Preparation Programs	Aligned to Kentucky Teacher Standards			1a-d, Overall	DFI 2	1a-d	State Approved Certification Exams	1a-d	1a-d
Designs/Plans				2a-e, Overall	CF 1-5, LG 1-4, DFI 1, 3-5	2a-e	2a-e	2a-e			
Learning Climate				3a-e, Overall		3a-e	3a-e	3a-e			
Implements/Manages				4a-e, Overall	IDM 1-3	4a-e	4a-e	4a-e			
Assessment/Evaluation				5a-d, Overall	AP 1-5, ASL 1-4	5a-e	5a-e	5a-e			
Technology				6a-d, Overall	DFI 6	6a-d	6a-d	6a-d			
Reflection				7a-c, Overall	RSE 1-3	7a-c	7a-c	7a-c			
Collaboration				8a-b, Overall		8a-d	8a-d	8a-d			
Professional Development				9a-c, Overall	RSE 4-5	9a-d	9a-d	9a-d			
Leadership				10a, Overall		10a-d	10a-d	10a-d			
Dispositions	FR a-f					FX a-l		Disp a-l			
Field Experiences & Clinical Practice				Summary Form	OTS Data						
Diversity				Summary Form	OTS Data	Disp g	CF 1-5, AP 5, DFI 4, IDM 2				
Impacts P-12 Student Learning							AP 1-5, ASL 1-4				
<b>DATA MAINTAINED BY:</b>	OTS		Faculty	C&I Staff	OTS	OTS/EdTech	C&I Staff/Ed Tech	Ed Tech	OTS	Ed Tech	Ed Tech
<b>DATA HOUSED IN:</b>	CEBS ACCSYS		CEBS ACCSYS	CEBS ACCSYS		CEBS ACCSYS		CEBS ACCSYS			
<b>DATA REPORTING CYCLE:</b>	Semester		Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Yearly	Biannually
<b>DATA REVIEWED BY:</b>	PEC		Faculty/Programs/PEC	Programs/PEC	Programs/PEC	Programs/PEC	Programs/PEC	Programs/PEC	PEC	Programs/PEC	Programs/PEC
<b>TRANSITION POINTS:</b>	1: Program Admission		2: Admission to Culminating Assessment and Final Clinical Experience			3: Program Exit					

\*All initial preparation programs collect these data.

### How Data Fit and Are Used Within the Electronic Accountability System

WKU Professional Education Unit Electronic Accountability System Components								
DEMOGRAPHICS						REPORTS		
COMPONENT 1		COMPONENT 2		COMPONENT 3		COMPONENT 4	COMPONENT 5	
Admission Data		Electronic Portfolio System		Early Clinical Experiences	Final Clinical Experience	Culminating Assessment Data	Certification & Praxis	Follow Up Surveys
INITIAL PREPARATION	Data entered by Office of Teacher Services after Student Orientation	Course Based Critical Performances uploaded by candidates and scored by faculty		Data entered by Curriculum & Instruction staff after candidates submit Fieldwork Summary Form	Data entered by Office of Teacher Services	Teacher Work Sample Scores entered electronically by faculty & Ed Technology	Data entered by Office of Teacher Services	Electronic survey data merged into Accountability System
ADVANCED PREPARATION	Data entered by Office of Teacher Services after Graduate Admission	Course Based Critical Performances uploaded by candidates and scored by faculty		<i>Data currently housed by each program</i>	<i>Data currently housed by each program</i>	Course Based Critical Performances uploaded by candidates and scored by faculty	Data entered by Office of Teacher Services	<i>Data currently housed by each program</i>
TRANSITION POINTS	1: Program Admission	2: Admission to Culminating Assessment and/or Final Clinical Experience			(Overlap in some AP Programs)	3: Program Exit		

\*Italics indicates data currently housed elsewhere that will be added to Accountability System in the future.



**Delineation of Unit/Program Transition Points – Initial Preparation**

Transition Point 1: Admission to Education Preparation Programs			
Data Reviewed	Minimal Criteria for Admission/Continuation	Review Cycle	Reviewed By
<u>Unit Level Data:</u> <ul style="list-style-type: none"> <li>▪ Admission Application</li> <li>▪ Overall GPA</li> <li>▪ Adherence to Professional Code of Ethics</li> <li>▪ Speech Proficiency</li> <li>▪ Writing Proficiency</li> <li>▪ Test Scores</li> </ul> <ul style="list-style-type: none"> <li>▪ Faculty Recommendations (Unit Dispositions)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Completion of application</li> <li>▪ 2.5+</li> <li>▪ Candidate signature</li> <li>▪ C or higher in speech course</li> <li>▪ 2.5+ average, no course lower than C</li> <li>▪ ACT (21+) or</li> <li>▪ SAT (990+) or</li> <li>▪ PPST (173 – M, 173 – R, 172 – W) or</li> <li>▪ GRE (800+ and 3.5+ writing assessment) or</li> <li>▪ GAP (2000+ and 3.5+ writing assessment)</li> <li>▪ All positive (18+)</li> </ul>	Each Month	Professional Education Council
Transition Point 2: Admission to Final Experience (e.g., Student Teaching, Clinical Practice, Culminating Assessment)			
Data Reviewed	Minimal Criteria for Continuation	Review Cycle	Reviewed By
<u>Unit Level Data:</u> <ul style="list-style-type: none"> <li>▪ Admission to Education Preparation</li> <li>▪ GPAs</li> </ul> <ul style="list-style-type: none"> <li>▪ Semester Hours Completed</li> <li>▪ Dispositions Scores</li> <li>▪ Critical Performance Scores</li> </ul>	<ul style="list-style-type: none"> <li>▪ Admission</li> <li>▪ 2.5+ overall</li> <li>▪ 2.5+ professional education courses</li> <li>▪ 2.5+ content courses</li> <li>▪ 90+ (including 75% of content courses)</li> <li>▪ All dispositions average "At Standard" (3+)</li> <li>▪ 3.0+ overall</li> <li>▪ 2.5+ per Kentucky Teacher Standard measured</li> </ul>	Each Semester	Professional Education Council
Transition Point 3: Program Exit			
Data Reviewed	Minimal Criteria for Exit	Review Cycle	Reviewed By
<u>Unit Level Data:</u> <ul style="list-style-type: none"> <li>▪ Seminar Course Grade</li> </ul> <ul style="list-style-type: none"> <li>▪ Student Teaching Grade</li> </ul>	<ul style="list-style-type: none"> <li>▪ C or higher - based on Teacher Work Sample holistic score of 2+</li> <li>▪ C or higher - based on 7+ Kentucky Teacher Standards at or above "Proficient" (3+), no Standard below "Developing" (2), AND 11+ dispositions "At Standard" (3+)</li> </ul>	Each Semester	Office of Teacher Services

**Remediation Opportunities:**

**TP 1:** Candidates may continue to submit Faculty Recommendations until three are positive.

**TP 2:** Candidates may request additional instruction from faculty and may resubmit Critical Performances in order to improve their scores.

**TP 3:** Candidates may request additional instruction from faculty and may resubmit the Teacher Work Sample in order to improve their score. Candidates may repeat student teaching.

**Other Key Data Collection Matrix**

**Preparation Program: Mathematics Education (Initial Preparation)**

CF Values	Unit-Wide Assessment	Program Level Data Collection Points (Courses)				
		1	2	3	4	5
Dispositions	Dispositions Form	SMED 102	SMED 320	SMED 470	SEC 490	
Field Experiences & Clinical Practice	Early Clinical Experience Summary Information	SMED 102	SMED 320			
Field Experiences & Clinical Practice	Final Clinical Experience Summary Information	SEC 490				
KTS/Impacts P-12 Student Learning	Capstone Assessment/Teacher Work Sample	SMED 489				
KTS/Dispositions	Final Clinical Experience Evaluation	SEC 490				
KTS	Exit Survey	SMED 489				
Diversity*	Early Clinical Experience Summary Information	SMED 320				

\*Please indicate the course or experience your program uses to guarantee that all candidates work with diverse students.



**Annual Program Assessment Report Outline (Due September 15)**  
**Academic Year \_\_\_\_\_**

1. Present your continuous assessment results in the following areas:
  - a. Admission Data
  - b. Course Based Assessment Data
  - c. Clinical Experiences Data – *Be sure to include dispositions assessment results, P-12 student diversity statistics, and results of efforts to ensure all candidates work with diverse students.*
  - d. Culminating Assessment Data – *Be sure to include impact on P-12 student learning data.*
  - e. Exit and Follow Up Data
  
2. Summarize the above results by Kentucky Teacher (Initial Programs) OR Program Standards (Advanced Programs) AND other key Conceptual Framework values. *Be sure to describe what the results tell you about your candidates' progress toward/proficiency on each standard/CF value.*
  
3. Summarize your efforts to report and disseminate your results (Unit/College-wide meetings, department/program level meetings, written reports, presentations, etc.).
  
4. Summarize key discussions and/or decisions made based on assessment results:
  - a. Describe any assessment or data collection changes you have made/will make based on your assessment results.
  - b. Describe any program curriculum or experience changes you have made/will make based on your assessment results.
  - c. Describe any decisions about group/individual student progress you have made/will make based on your assessment results.