

Angelo State University



Education Course Descriptions

Early Childhood

Cognitive Development - A study of qualitative and quantitative changes in thinking, organizing, perceiving, and problem solving. Emphasizes the sensory motor, intuitive, concrete, and formal development periods.

Creative Development in Early Childhood - A study of cognitive, affective, and psychomotor skills addressed through music, visual arts, creative movement, literature, and sensory perception. Emphasis on diagnosis and evaluation of early childhood development, nutrition, and health. Emphasis is placed on the young child to adolescence.

Play Dynamics Research - A study of classical and contemporary theories of play. Focus of the study includes empirical basis of play as a component of cognitive, social, perceptual-motor, and developmental processes. Trends and issues of changes in play related to socio-dynamic influences and their effects on play quality, imaginative play, passive aggressive play, and play therapy are considered. A field experience component is required.

Socio-cultural Relations in Early Childhood - Explores the multi-social, multi-lingual, multicultural contexts, and their effects on young children. Topics include cultural and social diversity, family issues, linguistic and bilingual foundations, community influence on development, day care, and special issues relevant to multi-cultural society. Emphasis is placed on the child to adolescence.

Educational Psychology

Adolescent Development - The study of cognitive, social, personality, and emotional development of adolescents with emphasis on special developmental problems, testing, behavior and current social problems related to adolescent development.

Child Development - A study of the human development processes in children from birth to adolescence including the developmental characteristics of learners in the cognitive, social, emotional and physical domain. Special issues relevant to a diverse multicultural society and their sociocultural influences which affect children's classroom behavior will be examined.

Reading

Components of the Reading Process - The interaction of cueing systems in reading — graphophonic, syntactic, semantic, and schematic — decoding and comprehending nonfiction and content area text at literal, inferential, and evaluative levels.

Angelo State University



Education Course Descriptions

Language Development and Literacy - The relationship of language development in listening, speaking, and writing to reading. Topics will include language development of students speaking English dialects, regional variants of languages, and English as a second language.

Principles and Practices for Learning to Read - How reading begins in emergent literacy, continues to develop through application of research-based principles and practices, with various reading materials including technology.

Reading Diagnosis and Remediation - Provides experience in the use of informal and formal diagnostic techniques for identifying reading problems such as dyslexia and other reading disabilities. Recommendations for remediation are correlated with assessment, technology, and other strategies to meet individual needs of students.

Reading in the Secondary School Content Areas - A study of reading skills, learning and study and higher level thinking skills development in the content areas. Includes determining the readability of curriculum materials, adapting learning experiences, planning curriculum to accommodate student diversity in reading ability, and assessing student learning. A field experience component is required.

Reading Practicum - Students will apply reading knowledge and skills in a variety of settings: primary, intermediate, or middle school. This course is the capstone field-based experience in reading prior to the student teaching experience.

Reading: The Reading and Writing Process - The integration of recent research and theories about the writing process, reading and writing connections, and writing across the curriculum in the elementary and middle school.

The Role of Affect and Literature in Reading - A study of the affective aspects of attitudes, motivation, interest, beliefs, feelings, and values of children's and adolescent's literature in helping students become lifelong readers. A variety of genre will be explored relating to social, emotional, intellectual and literacy development.

Special Education

A Survey of Exceptionalities - A survey of handicapping conditions including: physically handicapped, mental retardation, hearing impaired, visually impaired, speech handicapped, emotionally handicapped, learning disabled, and multiply handicapped.

Behavior Theory in the Treatment of the Mentally Retarded - The use of behavior theory in the treatment of the mentally retarded, emphasizing basic behavioral principles, task analysis, behavior management, classroom management, and parent training.

Angelo State University



Education Course Descriptions

Learning Disorders - The characteristics of learning disordered persons including a study of the psychomotor, affective, and cognitive processes.

Management Issues with Disabled Individuals - A review of the theories, assessment methodology, and strategies for implementation of management issues with disabled individuals including consultation and collaboration theories when working with diverse groups.

Principles of Assessment - Designed to provide a working knowledge of assessment, emphasizing the assessment of motor, perceptual, language, cognitive, and achievement problems.

Problems in the Treatment of the Mildly Handicapped - Special problems related to the treatment of students mildly handicapped students. Designed to provide a working knowledge of treatment alternatives for mildly handicapped students.

Student Teaching

Supervised Teaching All Levels - Observation of and participation in supervised teaching in appropriate public school settings for students seeking all level teacher certification.

Supervised Teaching in the High School - Observation of and participation in supervised teaching in appropriate public school settings for students seeking Grades 8-12 teacher certification.

Teaching Internship in Early Childhood to Grade 4 - Participation in supervised teaching

Mathematics Course Descriptions

Abstract Algebra I – An introduction to algebraic structures, groups, rings, integral domains and fields.

Advanced Calculus – Sequences, series, Riemann integral, Weierstrass approximation theorem, Lebesgue integral.

Calculus & Analytic Geometry I – Functions, limits, derivatives of algebraic, trigonometric, exponential and logarithmic functions, curve sketching, related rates, maximum and minimum problems, definite and indefinite integrals with applications.

Calculus & Analytic Geometry II – Methods of integration, polar coordinates, parametric equations, sequences and series and vectors.

Calculus Concepts and Modeling II – This course is specifically designed for students who will become teachers in Grades 4-8. It includes principles of the conceptual foundations of calculus and applications to middle school mathematics

Calculus I – Sets, functions, limits, derivatives and applications, introduction to integral calculus. Designed for students majoring in business, social and life sciences.

College Algebra – Linear, quadratic equations and inequalities, determinants, matrices, systems of equations, partial fractions, binomial theorem, logarithms, theory of equations.

Discrete Mathematics – An introduction to combinatorial and finite mathematics required in the study of computer science. Topics include special functions such as truncation, floor and ceiling, number theory, matrix algebra, summation notation, logic and Boolean algebra, probability, combinatorics, graph theory, difference equations and recurrence relations.

Elementary Geometry – The development of Euclidean geometry, concepts of measurement and coordinate geometry.

Elementary Number Theory – A development of the elementary theory of numbers, Diophantine equations, congruences, Fibonacci numbers and magic squares.

Foundations of Mathematics – Introduction to mathematical logic and set theory, cardinal and ordinal arithmetic, structure of the integers, rational number and real number systems.

Foundations of Mathematics II – This course is specifically designed for students who will become teachers in Grades 4-8. It includes principles and applications of axioms, theorems, and proofs for the natural numbers, integers, and real numbers.

Mathematics Course Descriptions

Fundamentals of Math I – Concepts of sets, functions, numeration systems, number theory, and properties of the natural numbers, integers, rational and real number systems with an emphasis on problem solving and critical thinking. This course is designed for students seeking EC-8 certification.

Higher Geometry – Axiomatic and set-theoretic treatment of geometry, analysis of the metric and synthetic approaches to Euclidean geometry, introduction to non-Euclidean geometries.

History of Mathematics – Historical origin and development of mathematical concepts through the sixteenth century. Topics include Egyptian and Babylonian mathematics, Greek mathematics, and early European mathematics.

Introduction to Advanced Mathematics – An introduction to logic and methods of proof with applications to basic set operations, relations, functions, cardinality, and the real number system.

Introduction to the Theory of Statistical Inference – A calculus-based introduction to statistics. Probability, special probability distributions, nature of statistical methods, sampling theory, estimation, testing hypotheses.

Linear Algebra I – A first course in linear algebra, including vector and matrix arithmetic, solutions of linear systems and the Eigenvalue-Eigenvector problem, elementary vector spaces and linear transformation theory.

Mathematical Modeling I – This course is specifically designed for students who will become teachers in Grades 4-8. Students will examine characteristics of situation to select or create math models in algebra, geometry, and trig using real-world situations.

Probability, Statistics and Statistical Modeling – This course is specifically designed for students who will become teachers in Grades EC-4 and 4-8. It includes principles and applications of probability and statistics with an emphasis on using real-world data collected, organized and analyzed by the students.

Problem Solving – Study of heuristics and strategies used in solving problems, with extensive practice in solving word problems involving skills in arithmetic, algebra, geometry and logic.

Topics in Secondary Mathematics – Introduction to essential topics for pre-service 8-12 mathematics educators. Topics include quantitative reasoning, algebraic thinking, geometry, spatial reasoning, measurement, precalculus, mathematics models, and AP Calculus and Statistics.



Trigonometry – Study of trigonometric functions, graphs, identities, inverse trigonometric functions, trigonometric equations, and applications of trigonometry. Recommended for students who have not had high school trigonometry.

Education Course Descriptions

Curriculum & Instruction (Pedagogy)

Human Learning: Educational Application and Assessments – Principles of psychological problems involved in education with emphasis on learning theories and the practical application of psychological principles to learning. Use of tests and assessments to improve instructional decisions.

Language Arts and Social Studies Methods for Elementary School Teachers – This course includes instructional strategies, learning activities, lesson planning, and methods of evaluation for teaching social studies and language arts in the elementary schools. Emphasis is on subject matter integration.

Managing the Early Childhood/Elementary Environment – A course of study to explore through comparison, analysis, evaluation, and practice eclectic theories and diverse strategies related to effective classroom management. Factors that contribute to a total learning environment with emphasis on helping students become self-regulated learners are probed.

Mathematics/Science Methods for Elementary School Teachers – This course for professional elementary school teachers includes instructional strategies, learning activities, lesson planning, diagnostic techniques, and methods of evaluation of mathematical and science learning.

Secondary Curriculum and Methodology – The structure and organization of the curriculum, materials, methods, and types of assessment used in secondary schools.

Secondary Methodology and Classroom Management – A course of study in exploring the theories and diverse strategies related to effective classroom management. Factors that contribute to a total learning environment with emphasis on helping students become self-regulated learners are probed.

Early Childhood

Instructional Strategies for Early Childhood – A comprehensive study of methods and materials for early childhood/elementary age children. Focus on oral language experiences, science and mathematics concepts and creative expression during a field based semester.

Education Course Descriptions

Introduction to Teacher Education – An orientation to the organization and professional components of dedication in the United States with emphasis on Teacher Education in Texas.

Research of Early Childhood Curriculum Content – An investigation of research studies in learning theories and instructional practices for early childhood education.

Educational Psychology

Child and Adolescent Development – A study of the psychological development of children from birth through adolescence with emphasis on physical, cognitive and social development processes.

Reading

Children's and Young Adult Literature – A study designed to provide students with information about children's books, periodicals and related media and their use with children. Techniques and materials for motivating children to develop a continuing interest in reading.

Emergent Literacy – A study of the language development of the child with emphasis on the interrelatedness of all aspects of language acquisition and appropriate practices for developing these skills including phonemic awareness, alphabetic principle and the knowledge of teaching phonics.

Integrating Reading & Media – Instruction and application of integrated reading methods and strategies through use of multimedia including, but not limited to video, audio, film, virtual, simulated and interactive software, and the Internet.

Language Arts in Early Childhood and Elementary Schools – The study and use of materials and techniques in the teaching of oral and written communication in the early childhood and the elementary school years.

Literacy Development and Reading Instruction in the Elementary School – Factors related to literacy development and elementary reading instruction in a diverse classroom; appropriate assessment and instructional techniques.

Reading/Literature Strategies for the Content Areas – This course is designed to provide the basic principles, concepts and procedures of reading and to enable prospective teachers to incorporate reading instructional techniques effectively into the content areas. Emphasis will be placed on the sound teaching practices within the confines of the content area classroom.

Education Course Descriptions

Special Education

Appraisal Processes in Programming for the Exceptional Individual – Formal and informal methods of appraising the educational needs of the exceptional learner and the use of interpretative data to prescribe appropriate curriculum modification, instructional materials, teaching strategies and classroom management.

Behavior Modification & Classroom Management for the Student with Exceptionalities – Principles of normal and abnormal child growth and development. Nature and causes of behavioral and physical characteristics and basic techniques of management.

Curriculum and Instructional Processes for Students with Severe/Profound Exceptionalities – (Field-based and Technology component) Instructional strategies that include models, methodologies, and materials appropriate for the learner with severe/profound disabilities.

Diversity of Learners – A study of new diversity in the classroom and how the community may affect learning. Interns will learn how to create a classroom environment in which the diversity of the group and the uniqueness of individuals are recognized and celebrated.

Foundations of Special Education – An orientation to background, terminology and programs for those who are exceptional. Designed as an overview of Special Education. A first course for those planning to certify in Special Education.

Instructional Alternatives for Teaching Reading and Language Arts to the Exceptional Learner – Identification of skill deficiencies, modification of curriculum, designing and implementation of instructional strategies for pupils evidencing disabilities in reading and language arts.

Interventions for the Inclusive Classroom – Instructional model, methodologies, and materials appropriate for the exceptional learner in an inclusive classroom. The student will be expected to spend at least fifty percent of the course time involved directly in a practicum-based setting.

Student Teaching

Student Teaching in the Elementary School – Supervised observation and teaching in the elementary school. *Class: All day in elementary professional semester.*

Student Teaching in the Secondary School – Supervised observation and teaching in the secondary school. *All day in secondary professional semester classroom, five days per week for 10 weeks.*

Mathematics Course Descriptions

A Survey of Mathematical Ideas - This course is designed to bring together and supplement the technical material of other mathematics courses in the mathematics teacher-education program and relate it to the mathematics curriculum of the secondary school.

Algebraic Structures - Topics include groups, rings, fields, finite groups and Abelian groups.

Calculus I - Topics include limits and continuity, the derivative, techniques for differentiation of algebraic, logarithmic, exponential and trigonometric functions, applications of the derivative and anti-differentiation.

Calculus II - Topics include the definite integral and its applications, techniques of integration, improper integrals, Taylor's formula and infinite series.

Calculus III - This course includes the study of the calculus of functions of several variables and topics in vector calculus including line and surface integrals, Green's Theorem, Divergence Theorem, and Stoke's Theorem.

Euclidean Geometry - This course consists of a modern development of Euclidean geometry and a limited introduction to non-Euclidean geometry.

Foundations of Mathematics - This course includes an introduction to logic, concepts of proof, proof techniques, induction, and sets.

Functions and Graphs - The emphasis of this course is on functions and their multiple representations including linear, polynomial, logarithmic, exponential and logistic functions.

Fundamentals of Calculus - This course provides an introduction to the concepts and applications of calculus. This course may be applied only toward elementary school teacher certification.

Fundamentals of Probability and Statistics - This course provides an introduction to probability and descriptive statistics, including regression and the construction and interpretation of tables, graphs, and charts. Calculator techniques related to the above topics will be incorporated into the course.

Geometric Measure and Transformations - Topics included in this course are measurement in one, two, and three dimensions, the metric system, transformational geometry, congruencies, similarities, geometric constructions, and coordinate systems.

Introduction to Linear Algebra and Matrices - Topics include systems of linear equations, vector spaces, matrix operations, and linear transformations and their matrices.

Sam Houston State University



Mathematics Course Descriptions

Introduction to the Foundations of Mathematics I - Topics include a study of sets, systems of numeration, natural numbers, integers, number theory and rational numbers. Credit in this course is applicable only toward elementary/middle school certification.

Introduction to the Foundations of Mathematics II - Topics include basic notions of Euclidean Geometry in 2 and 3 dimensions, concepts of congruence and similarity, transformational geometry and measurement.

Introduction to the Foundations of Mathematics III - Topics include probability, data analysis, discrete mathematics, and problem solving.

Mathematical Problem Solving - This course focuses on solving mathematical problems including the use of proof as well as graphical and numerical methods. It extends and connects concepts from algebra, geometry, and calculus, including functions, graphs, complex numbers and number systems.

Problem Solving in Middle School Mathematics - Topics and projects in mathematical problem-solving appropriate for the middle or junior high school mathematics specialist designed to meet individual student needs and interests.

Statistical Methods in Practice - Topics include organization and presentation of data, measures of central tendency, dispersion, and position, probability distributions for discrete and continuous random variables, sampling techniques, parameter estimation, and hypothesis testing. Emphasis will be given to the use of the MINITAB statistics package.

Sam Houston State University



Education Course Descriptions

Curriculum & Instruction (Pedagogy)

Assessment, Evaluation, and Legal Issues in the Elementary Classroom - The purpose of this course is to provide the prospective elementary or middle school teacher practical experience in the areas of assessment, evaluation, and legal issues in the elementary or middle school. The course will include a study of teacher made tests, standardized tests, interpretation of test scores, performance assessment techniques, grading and reporting student progress, and legal issues relevant to education.

Classroom Management For Secondary Schools - This course provides a survey of classroom management and discipline approaches appropriate in a public school setting. A range of management approaches and models will be critiqued. Study will include the philosophical foundations and integration of these models. Students will observe or assist teachers in a secondary classroom for a minimum of fifteen hours.

Developing a Professional Teacher Portfolio - The purpose of this course is to provide the prospective elementary or middle school teacher the opportunity to organize artifacts on the development, exploration, integration, application, and teaching of content knowledge, pedagogical knowledge and skill development in the development of a professional teacher.

Elementary Classroom Management in a Diverse Population - The purpose of this course is to provide the prospective elementary or middle school teacher with the experiences in classroom management and discipline theories appropriate for the diverse population of students in the elementary or middle school.

Mathematics in the Elementary School - This course emphasizes making mathematics meaningful to children. Students are expected to pass a mathematics proficiency test to receive credit for this course. Students are to make a lesson plan of acceptable quality, to produce a practical teaching aid, and to be able to integrate mathematics with other areas of learning. Students observe and teach math lessons in an elementary or middle school classroom for a minimum of six hours.

Media and Technology in Schools - Study is made of educational objectives, construction and use of teacher-made tests, grading, cumulative folders, parent conferences, statistics and interpretations of standardized tests. Further, this course provides laboratory experiences in the selection, development and use of media and the integration of technology in instruction.

Sam Houston State University



Education Course Descriptions

Methods of Teaching in Secondary Schools - This course provides a study of the objectives and the selection, organization, and presentation of the subject matter of the various secondary school subjects, instruction in the organization of units of work, and demonstration teaching. A minimum of fifteen hours will be spent in field experiences in a public school classroom. To be taken the semester prior to student teaching.

Responsibilities of the Professional Educator - This course is designed to assist future teachers in understanding the structure, organization, and management of public schools at the national, state, and local levels. Course content will include a study of the needs of the special learner and students from various cultures.

Science in the Elementary School - This course is concerned with the scope and sequence of the science curriculum for elementary and middle school children. Students are expected to pass a science proficiency test to receive credit for this course. Students are given experience in lesson planning, in organizing units of instruction, in the use of instructional materials, and in laboratory methods appropriate to elementary or middle school classrooms. Students observe and teach science lessons in an elementary or middle school classroom for a minimum of six hours.

Social Studies in the Elementary School - In this course experience is provided in the selection and evaluation of teaching methods, unit and lesson planning, use of curriculum and audio-visual materials, and the preparation of instructional materials appropriate for social science content and skills at different elementary and middle school grade levels. Students are expected to pass a social studies proficiency test to receive credit for this course. Emphasis is placed on the unit approach to teaching social studies. Students observe and teach social studies lessons in an elementary or middle school classroom for a minimum of six hours.

Student Teaching in the Secondary Classroom - The student is assigned full-time student teaching responsibilities at the secondary level (Grades 8-12) for a period of six weeks. This course must be taken with SED 497. This time is divided among observation, participation, teaching and conference activities. Time will be spent in each of the student's teaching fields.

Technology Applications in the Classroom - This course will apply technology and computers to support instruction in the elementary and middle school in various content areas. The course will explore, evaluate, and utilize computer/technology resources to design and deliver instruction as well as to assess student learning.

Early Childhood

Curriculum in the Preschool - The curriculum in the preschool and primary grades is presented with an emphasis on the Texas Essential Knowledge and Skills. Classroom arrangements, election of material and activities, evaluation procedures, and developmentally appropriate practices will be studied.

Sam Houston State University



Education Course Descriptions

Developmentally Appropriate Programs for Young Children - An in-depth study will be made of developmentally appropriate practices in schools for young children. Appropriate curriculum and instruction, thematic unit development, and a study of the Texas Essential Knowledge and Skills are major areas of emphasis. Field experience is required.

Guidance of Young Children - Classroom and behavior management techniques which are appropriate for young children will be presented with an emphasis on inductive discipline which leads to self-discipline. This course is taken concurrently with ECE 319.

Guidance of Young Children: Field Experience - Students will practice behavior management techniques with children in public school pre-kindergarten or kindergarten classrooms. This course is taken concurrently with ECE 329.

Study of the Preschool Child - This course is intended to provide a foundation in the basic principles and theories of child development. Field experience in child care facilities will be required.

Working with Families in Diverse Communities - This course is an in-depth study of the relationships between families and schools in diverse communities. Topics addressed in this course include discussions of major theories that support partnerships with parents; models for parent, school, and community partnerships; home, school and community influences on children's lives; parenting styles; family dynamics; parent education strategies; communication with parents; and the rights and responsibilities of parents, children and teachers. Field experience with young children and their families will be required.

Educational Psychology

Human Growth and Learning - This course examines growth and learning in elementary and secondary environments. Major theories of teaching-learning process are studied. Human development related to education is emphasized. Special attention is paid to the cultural milieu.

Introduction to Psychology - This course is designed to be a broad survey of the field of psychology covering such topics as learning, perception, personality, development, psychopathology, etc. It covers both the theoretical basis and the empirical content of these areas

Sam Houston State University



Education Course Descriptions

Language & Literacy

Content Based Learning for Second Language Learners - This course identifies appropriate curricula and teaching strategies to teach reading, language arts, mathematics, science and social studies to second language learners. Principles of current content area curriculum and instructional theory as related to language learning in a bilingual classroom are studied. Spanish is often used to teach this course. Field experiences in PK-4 schools required.

Language Acquisition Theory for Second Language Learners - This course examines language acquisition theories and philosophies related to learning a second language from early childhood to adult. The course also examines the history, rationale, political, community and global perspectives of bilingual education and English as a second language programs. Field experiences in PK-12 public schools required.

Language Learning and Literacy Development in Multilingual Students - This course provides an intensive study of the theories of language learning and literacy development for students learning English. Processes and strategies on the development of oral language and reading in the primary language, in particular Spanish, and transitions into English reading are emphasized. Correlations between the fundamental concepts and principles of reading and learning a second language are emphasized. Spanish is often used to teach this course. Field experience in PK-4 public schools required.

Literacy Processes of Culturally and Linguistically Diverse Populations - The fundamental concepts, principles, and conflicts of second language learning and teaching. Effective instructional approaches for students of diverse cultural and linguistic backgrounds are learned and applied. The use of multiethnic literature in the classroom is a special focus of this course

Multicultural Influences on Learning - This course examines the rich cultural heritages of the United States and their influences on learning. Linguistic dialects, cultural patterns, practices and contributions of various cultural groups are studied in their relation to the educational process. Particular emphasis is given to the cultural groups in the Southwest.

Teaching English As a Second Language - The course identifies current instructional methods and approaches to teaching English as a second language to nonnative speakers of English beginning at the early childhood level through adult. Principles and concepts of second language learning, linguistic contrasts between English and other languages, and the instructional processes are emphasized. Field experience in PK-12 schools required.

Sam Houston State University



Education Course Descriptions

Reading

Content Area Reading and Writing - Students will learn to determine pupils' needs and abilities in content area reading and writing through the use of assessment instruments and will plan instructional strategies appropriate to their needs within specific secondary teaching fields. Field experiences in PK-12 public schools required.

Literacy Across the Curriculum - This course focuses on using reading and writing as tools for learning in all academic areas, i.e. math, science, social studies, in elementary and intermediate school classrooms.

Literacy Assessment and Instruction - Students will administer and interpret varied assessment tools as well as select and implement appropriate instructional techniques to plan and conduct effective classroom literacy instruction. Field experiences in PK-12 public schools required.

Reading in the Middle Grades - This course focuses on the uniqueness of middle grade students, middle school structures and explore literacy theories and activities that meet these needs and structures.

The Teaching of Language Arts - Focus on the developmental stages of writing and the interrelated language processes of listening, speaking and reading and writing. Pre-service teachers will explore theories and instructional practices in the elementary school language arts program. Must be taken concurrently with RDG 370. Field experiences in PK-12 public schools required.

The Teaching of Reading - The fundamental concepts and principles of reading instruction and focus on the developmental stages of reading. Word attack, comprehension, study strategies and other aspects of a balanced literacy program are learned and applied. Must be taken concurrently with RDG 390. Field experiences in PK-12 public schools required.

Special Education

A Study of Emotional and Behavioral Disorders - This course provides a study of the defining characteristics, systems of assessment and classification, theories of causality, and interventions for students with Behavioral Disorders.

A Study of Learning and Learning Disabilities - Disabilities in learning are examined with emphasis on history, definition, causation, teaching methods, and inclusive practices.

Sam Houston State University



Education Course Descriptions

Behavioral Intervention and Family Involvement in Special Education - This course addresses a variety of instructional techniques that can be utilized to change, maintain, increase, or decrease individual and group behaviors. Proactive behavioral intervention techniques from a variety of theoretical models are examined. Behavioral change strategies emphasize functional assessment principles, positive behavioral supports, and self-management. The basic principles, tools, and techniques of communicating with parents of children with disabilities and implementing parent education programs also are addressed.

Introduction to Special Education - This survey course presents case studies of students with special needs, historical perspectives of special education, recommended educational approaches, and current models and issues in special education. Field experiences in PK-12 public schools and various appropriate field placements required.

Learning and Instruction for Young Children with Disabilities - This course provides opportunities for students to demonstrate competencies by working with young children with disabilities under the supervision of a qualified teacher. This course provides experiences in designing individual instructional plans, assistive technology, data collection, and instructional adaptations. Field experiences in PK-12 public schools required.

Student-Centered Planning and Learning in Special Education - Emphasis is placed on the selection of assessment strategies, teaching methods, lesson planning, use of technology, and the preparation of instructional materials appropriate for students with special needs. Field experiences in PK-12 public schools required.

Study of Cognitive and Low Incidence Disabilities - This course includes a study of the characteristics and needs of students with MR and low incidence disabilities. Topics include appropriate curriculum methods and instructional needs for all ages, life span issues, vocational, and transition issues. Twenty (20) hours of field placement required.

Student Teaching

Student Teaching in a Bilingual or ESL Classroom - The student is assigned to student teaching in a bilingual and elementary classroom fulltime for twelve weeks. The student is assigned to student teaching in an English as a second language classroom or period full-time at the elementary or secondary level for six weeks or one-half day for twelve weeks.

Student Teaching in the Elementary School (EED491) - The student is assigned to student teach in an elementary or middle school classroom for six weeks. Must be taken with EED 492, ECE 486, BSL 488, SPD 484, or SED 497 for a total of six semester hours credit for the provisional elementary or provisional all-level certificate.

Sam Houston State University



Education Course Descriptions

Student Teaching in the Elementary School (EED492) - The student is assigned to student teach in an elementary or middle school classroom for six weeks. Must be taken with EED 491.

Student Teaching in the Secondary Classroom (SED496) - The student is assigned full-time student teaching responsibilities at the secondary level (Grades 8-12) for a period of six weeks. This course must be taken with SED 497. This time is divided among observation, participation, teaching and conference activities. Time will be spent in each of the student's teaching fields.

Student Teaching in the Secondary Classroom (SED497) - The student is assigned full-time student teaching responsibilities at the secondary level (Grades 8-12) for a period of six weeks. This course must be taken with SED 496 or EED 491. This time is divided among observation, participation, teaching and conference activities. Time will be spent in each of the student's teaching fields.



Mathematics Course Descriptions

Calculus I - Topics include limits and continuity, the derivative, techniques for differentiation of algebraic, logarithmic, exponential and trigonometric functions, applications of the derivative and anti-differentiation.

Calculus II - Topics include the definite integral and its applications, techniques of integration, improper integrals, Taylor's formula and infinite series.

Calculus III - This course includes the study of the calculus of functions of several variables and topics in vector calculus, including line and surface integrals, Green's Theorem, Divergence Theorem and Stokes' Theorem.

Discrete Mathematics - Sets, Boolean algebra and Venn diagrams, functions, elementary propositional and predicate logic, proof techniques, graph theory, combinatorics and elementary probability, and modular arithmetic.

Foundations of Elementary Mathematics I - First course in required mathematics content sequence for preservice elementary and middle school teachers. Topics include problem-solving techniques, reasoning, study of sets, systems of numeration, natural numbers, integers, number theory and rational numbers. Emphasis on problem-solving as a pedagogical tool, with integration of manipulative-based explorations.

Foundations of Elementary Mathematics II - Second course in the mathematics content sequence for preservice elementary and middle school teachers. Topics include: fraction operations, decimals, real numbers, ratio and proportion, percent, basic notions of geometry, measurement and basic probability and statistics.

Foundations of Elementary Mathematics III - Topics from informal Euclidean Geometry in 2 and 3 dimensions, including concepts of congruence and similarity, transformational geometry and measurement; and development of algebraic reasoning and beginning algebra.

Geometry - This course consists of a modern formal development of Euclidean geometry and a limited introduction to non-Euclidean geometry, with an integration of topics, methods and use of technology appropriate for prospective middle grade and secondary mathematics teachers.

History of Mathematics - Biographies of a representative sample of mathematicians along with an exploration of the chronological development of important ideas in mathematics, particularly in the fields of geometry and number theory.



Mathematics Course Descriptions

Linear Algebra - Systems of linear equations, matrices, determinants, vectors and vector spaces, matrix inversions and linear transformations, determination of eigenvalues and eigen-vectors and numerical approximation methods of linear algebra. Use of a programmable graphing calculator may be required. Students are also introduced to related mathematical resources on the Internet.

Mathematical Statistics - Classical probability theory; discrete and continuous random variables; distribution functions; expectation; law of large numbers; central limit theorem; applications.

Statistics - An introductory statistics course designed to give the student the critical thinking skills necessary to interpret statistical information. This course will prepare the student for further statistical work in his/her field. Topics include: measures of central tendency, measures of variation, normal distributions, hypothesis testing and graphical representations. Use of statistical software and real-world data is integrated throughout the course.

Trigonometry - Directed angular measure, definitions and evaluation of circular and trigonometric functions, graphs of the trigonometric functions, the inverse trigonometric functions and their graphs, solution of triangles by the law of sines and law of cosines, trigonometric identities and conditional equations, and applications of trigonometry to analytic geometry.

University Algebra - A university-level algebra course for students who plan to take calculus. Topics include linear and quadratic equations and functions, inequalities, graphs and zeros of polynomial and rational functions, exponential and logarithmic functions and systems of equations and inequalities.

Sul Ross State University



Education Course Descriptions

Curriculum & Instruction (Pedagogy)

Curriculum and Instruction for the Middle Grades - This course is designed to prepare teachers to meet the educational needs of students in grades 4-8, including a study of the characteristics of the student, appropriate content and pedagogy, selection of instructional goals and objectives, resources and assessment of student learning. This is a field-based course.

Diverse Populations in the Regular Classroom - Instructional strategies addressing diversity in the regular classroom, with emphasis upon students with cultural differences, limited English proficiency, educational disabilities and/or gifts and talents.

Elementary Integrated Curriculum - Language Arts - The study of elementary curriculum development, instructional planning, resources, fostering a learner-centered classroom climate and evaluation in the area of language arts. Focus will be on integrated units of study and field-based instruction.

Elementary Integrated Curriculum - Math, Science and Social Studies - The study of elementary curriculum development, instructional planning, resources, fostering a learner-centered classroom climate and evaluation in the areas of math, science and social studies. Focus will be on integrated units of study and field-based instruction.

Emergent Literacy and Assessment - A comprehensive study of literacy development for young children. Early literacy assessment techniques will accompany developmentally appropriate practices.

Language Acquisition and Development - A course in language acquisition and development with emphasis on theories of psycholinguistics and sociolinguistics applied to the acquisition of one or more languages.

Methods and Materials for the Middle Grades - Designed as a companion course to ED 3306, this course prepares teachers to meet the educational needs of students in grades 4-8, including classroom management and communicating with students, colleagues and parents. This course is field-based and has a strong component addressing instructional technology.

Principles of Education - A course for teachers which includes the legal and ethical aspects of teaching and the recognition of and response to signs of abuse and neglect in children; structure, organization and management of the American school system with emphasis on the state and local structure in Texas.

Sul Ross State University



Education Course Descriptions

Secondary School Curriculum and Instruction - A study of the development of secondary curriculum organization, planning and evaluation, with emphasis on the scope and sequence of the essential elements for the subjects taught in the secondary school. Content includes group and individual approaches to instruction and classroom management.

Secondary School Methods and Materials - A course emphasizing the practical details of methods and teaching in the secondary school, including unit and lesson planning, materials and technology of instruction, curriculum content and provisions for individual differences. Includes a unit on exceptional and multicultural students.

Technology in the Instructional Setting - This course prepares teachers to plan, organize, deliver and evaluate instruction that incorporates the effective use of current technology.

Early Childhood

Early Childhood: Curriculum and Materials - Materials for the modern pre-kindergarten setting with special attention to the development of pre-reading skills.

Early Childhood: The Young Child - A comprehensive study of the cognitive and physical growth and development of infancy and early childhood with regard to developmentally appropriate practices of learning.

Educational Psychology

Educational Psychology - A study of the teaching-learning processes, including measurement and evaluation of student achievement; human growth and development; knowledge and skills concerning the unique needs of special learners, including multicultural, special and gifted and talented students.

Human Growth and Development - A course in the theories of normal child growth and development, including the biological and sociocultural determinants of growth, cognitive development and personality development. Characteristics of abnormal development will also be included along with determiners of what is an exceptional child and how cultures affect the growth of the child in all areas of development.

Language & Literacy

Content Areas for the Bilingual Student - A study of approaches to achieving competencies in social studies, science, mathematics, music and art for the bilingual student.

Sul Ross State University



Education Course Descriptions

Foundations of Bilingual Education - A study of the evolution, rationale, legislation, philosophy, goals and objectives of bilingual education.

Language Arts for the Bilingual Student - A study of approaches to achieving language arts competencies for the bilingual student.

Principles and Concepts of Second Language Learning - A study of current theories of and approaches to second language learning.

Reading

Reading Comprehension and Enrichment - Emphasis on divergent learning in the following reading areas: vocabulary development, critical/analytical reading, research and reporting and appreciative reading.

Reading Diagnosis and Remediation - Strategies for teaching reading to pupils who have problems in auditory learning, visual learning, language learning and the slow learner.

Reading Skills for Content Subjects - Methods and materials for teaching skills needed for locating, interpreting and organizing reading materials used in science, social studies, math and the other content subjects. Includes interpretation of graphic aids, skimming and scanning.

The Teaching of Reading - Intensive study of reading assessment, readiness, beginning reading, remedial reading, reading devices and the use of audio-visual aids in reading.

Word Identification Skills - The study of the skills involved in word identification in the context of language concepts. Attention will be given to phonics, structure, context, whole-word skills and the teaching strategies useful to increase the students' knowledge of words and word analysis skills.

Special Education

Survey of Exceptional Children - A survey of exceptional children involving categorical identification, learning characteristics, instructional intervention and adjustment needs.

Student Teaching

Student Teaching: Early Childhood through Grade 4 - Prerequisite: 45 clock hours of documented observation in an accredited school; approval of the Coordinator of Field Experiences.

Sul Ross State University



Education Course Descriptions

Student Teaching in the Middle School, 4-8 - Prerequisite: 45 clock hours of documented observation in an accredited school; approval of the Coordinator of Field Experiences

Student Teaching in the Secondary School - Prerequisite: 45 clock hours of documented observation in an accredited school; approval of the Coordinator of Field Experiences.



Mathematics Course Descriptions

Analysis I (Advanced Calc. I) – A course covering the introduction to the theory of real functions. Topics include limits, continuity and derivatives and associated topics.

Calculus I. – A first course in differential and integral calculus which stresses limits as well as the applications of calculus to the problems of science

Calculus II – A continuation of differential and integral calculus including methods of integration, sequences and series, and introduction to partial derivatives.

Calculus for Life Sciences I – This course is designed to serve the needs of students in the life sciences. Topics will include: graphs, derivatives, exponents and logarithms, scientific notation, sequences, summation, and applications.

Calculus for Life Science II – Extension of Math 2321. Topics will include: trigonometric functions, probability, integral calculus, differential equations, and applications.

College Algebra – A course covering linear and quadratic equations, inequalities, word problems, functions, logarithms, systems of equations and other college algebra topics as time permits.

Elementary Statistics – Algebra-based introduction to descriptive statistics, random sampling, design of experiments, probability, and the central theorem. Inferential statistical topics include the foundational concepts for confidence intervals and hypothesis testing for simple experiments.

Informal Geometry – Geometric measuring. Euclidean Geometry, and topics associated with informal geometry, including historical, philosophical, and cultural significance.

Introduction Advanced Mathematics (Intro to Topology) – An introduction to the theory of sets, relations, functions, finite and infinite sets, and other selected topics. Algebraic structure and topological properties of Euclidean Space, and an introduction to metric spaces.

Introduction to Probability and Statistics – Basic probability models, generating functions and conditional probability, also discrete and continuous, univariate and bivariate distributions of random variables. Concepts of estimation, tests of hypothesis and statistical inference.

Introduction to the History of Mathematics – A survey of the development of major mathematical topics, including geometry, algebra, calculus, and advanced mathematics. Philosophical and cultural aspects will be integrated with the structure, theorems, and applications of mathematics.



Mathematics Course Descriptions

Mathematics for Business and Economics I – Topics from college algebra and finite mathematics which apply to business and economics including applications of equations and inequalities, simple and compound interest and annuities.

Math Understandings – Basic concepts underlying algebra, geometry, trigonometry, and calculus taught from an advanced standpoint, including historical, philosophical, and cultural significance. Must be taken before student teaching.

Modern Algebra – A course covering elementary set theory, structures, functions, and concepts of modern algebra.

Modern Geometry – Modern geometry with emphasis on the triangle, circle, plane and Euclidian geometry, and historical aspects will be integrated into the course.

Pre-Calculus Mathematics – A survey of functions, trigonometry and analytic geometry to prepare students for calculus.

Principles of Mathematics I – Logical deductive reasoning, number theory, a rational development of the real numbers with the associated number structures and algorithms for the fundamental operations, including historical, philosophical and cultural significance.

Principles of Mathematics II – Topics such as modeling, measurement, statistics, probability, geometry and algebra concepts will integrated with sound middle school pedagogical practices such as inquire learning, use of manipulatives, problem-based learning, calculator use, cooperative learning, and peer presentations.

Topics in Linear Algebra – An introductory course in linear algebra covering vector spaces, linear transformation, matrices, systems of linear equations, and inner product spaces.

Education Course Descriptions

Curriculum & Instruction (Pedagogy)

Classroom Management and Teacher-Student Relationships - Course will focus on classroom management theories and models. Personal philosophy, beliefs, and style of teaching will be examined as they relate to the various methods of classroom management, student discipline, and teacher-student relationships.

Instructional Strategies for the Secondary Teaching - Study of models for instruction, with attention to assessment and classroom management. Students develop and practice strategies for building classroom communities, teaching all learners, and integrating technology into instruction. Focus on meeting needs of individual learners while maintaining academic rigor.

Mathematics in the Integrated Elementary Curriculum - Course provides an in-depth study of the mathematics content and methodology derived from principles of learning and research. Primary focus will be on the development of mathematics understanding and relevant applications rather than manipulation of numbers without context, purpose, and concepts. Students will develop the skills needed in cooperative planning, provide methods of organizing mathematical principles into lessons for pupils, and develop techniques for evaluating pupil progress within a field-based environment.

Middle Level Philosophy and Schooling - Physical, social, emotional, cognitive, and moral characteristics of young adolescents in contexts of family, community, school, society. History and philosophy of middle school as a developmentally appropriate environment for young adolescents. Continued study of instruction that is affectively and cognitively appropriate for young adolescents.

Middle School Curriculum and Instruction – Focus on cooperative learning, direct instruction, discovery learning, technology, and learner-centered instruction.

Public Education in America - Course focuses on an examination of learners, educators, curriculum, learning processes, teaching, instructional materials, and assessment. The historical, legal and political contexts of public schooling in America are included. Current trends and issues are addressed.

Secondary Teaching: Curriculum and Technology - Investigation of secondary curriculum: its history, organization, development, and representation in instructional materials. Students learn how curriculum is decided, impacted, and assessed. Topics include local, state, and national standards, trends, and roles of culture and technology in teaching and learning.

Education Course Descriptions

Design and Application of the EC-4 Curriculum - Course focuses on design and application of curricula including content, instructional methodologies and assessment. Foundational theories of human development and learning will be used as students focus on the organization of content, instructional strategies, classroom environment, utilization of materials, and assessment.

Early Childhood

Curriculum for Preschool and Kindergarten Children - Emphasizes research, program development, and developmentally appropriate teaching strategies, materials and activities for children ages 3-6 and collaboration with families.

Seminar for Teachers of Young Children - Directed field experiences in observation, participation, problem solving, assessing and teaching in programs for young children. A minimum of 1.5 hour seminar per week is required in addition to assignment (three hours weekly) in an approved preschool or kindergarten program.

The Languages of Children: Acquisition and Use - This course is designed to provide pre-service teachers with pertinent information regarding the development of language and cognition in pre-school and school-aged children. Information regarding language structure, the sequence of development as well as the cognitive and social aspects of language acquisition and use will be included.

Educational Psychology

Adolescent Growth and Development - Study of biological, cognitive, and psychological theories and processes of adolescence. Prepares prospective teachers to understand abilities, behaviors, and needs of learners. Roles of family, peer groups, and culture examined with the aid of contemporary adolescent literature.

Human Development and Learning Theory - Students will study human development and learning theories, including social and cultural factors that affect learning. Implications for classrooms and teaching will be discussed. Students will also examine education as a profession.

Language & Literacy

Foundations of Bilingual Education - The rationale, history, and philosophy of bilingual education, planning for the provision of the cultural, motivational, and self-concept influences that mediate the learning process of the **Limited English Proficiency** pupil in the elementary classroom.

Education Course Descriptions

Literacy Education for Culturally and Linguistically Diverse Children - Course focuses on issues and trends in the education of children from diverse language and/or cultural backgrounds. Course topics include second language acquisition, cultural awareness and sensitivity, and culturally relevant instruction and effective teaching practices.

Psychological Foundations of Bilingual Education - The evaluation of achievement and learning ability of the **Limited English Proficient** pupil will be examined. The psychological development of the **LEP** pupil and the relationship of cultural values, socialization practices and learning styles will be analyzed.

Teaching the Bilingual Content Areas - Content, methods, and materials of elementary bilingual classroom instruction. Teaching the bilingual curriculum and providing strategies and materials for meeting the needs of the **Limited English Proficient** pupil.

The Elementary Bilingual Content areas - Mathematics, science, social studies, and language arts curriculum in the bilingual classroom.

Reading

Assessing Reading and Writing - Students will learn about the characteristics, uses, and limitations of various types of assessment tools; laws and policies related to assessment; and apply what they have learned about assessment and assessment-based planning and teaching in the elementary language arts classroom. This is a field-based class.

Content Reading - Course provides information about instruction in the elementary content areas with emphasis on the effective use of textbooks and trade books. Course topics include: nature and purpose of content instruction and reading, text selection, use of trade books, comprehension, inquiry learning and problem solving, and assessment and meeting individual needs in content reading.

Developmental Reading for EC-4 - Current reading strategies and materials for teaching developmental reading in EC-4. Topics include: approaches, materials, word recognition/analysis, comprehension, and vocabulary; literature in the reading/writing program, instructional strategies with novice/expert readers at the EC-4 level.

Integrating Reading and Writing - Students study the integrative approach to reading and writing in the elementary school curriculum.

Education Course Descriptions

Reading and Writing Instruction for Children with Special Needs - Course focuses on classroom reading instruction for children not making average progress in literacy. Course topics: nature and identification of literacy difficulties, including dyslexia; modification of instruction for children with special needs; diagnostic teaching, teacher/program effectiveness and legal requirements of special populations.

Teaching Reading in the Content Areas - Provides information about reading in secondary content areas emphasizing selection and use of materials, including textbooks in print and electronic formats. Topics include instructional strategies, assessment of comprehension, and adapting instruction to meet student needs.

Special Education

Assessing Students with Disabilities - The course provides information about formal and informal assessment for the identification of cognitive aptitude, academic achievement, social, emotional, and motor development, as well as the implications of these results for instruction or remediation.

Classroom and Behavior Management Strategies for Students with Disabilities - Effective strategies for classroom management. Topics include: common management problems, evaluation of classroom management approaches, strategies for preventing behavior problems, teaching new behaviors, increasing desired group and individual behaviors, and positive strategies for reducing inappropriate group and individual behaviors.

Educating Students with Emotional/Behavioral Disorders - This course addresses topics associated with teaching students with emotional/behavioral disorders. Content includes an overview of definitions and characteristics, etiological factors, assessment for diagnosis and intervention planning, treatment options, including methods and materials for effective instruction, collaborative interagency services, and current issues.

Educating Students with Mental Retardation and Other Severe Disabilities - This course provides an overview of student characteristics and appropriate instructional techniques pertaining to individuals with mental retardation and other severe disabilities. Techniques will include specialized assessment and instructional strategies, functional curriculum development, transition planning, positive behavior supports, medical management, physical management, and assistive technologies.

Educating Students with Mild Disabilities - Course provides information about modifications for students with mild disabilities. Characteristics of special education categories discussed with primary emphasis on learning disabilities. Role of classroom management and classroom

Education Course Descriptions

teacher's role with students with mild disabilities addressed. Methods for individualizing instruction under a variety of classroom conditions presented.

Special Education Practicum - This course provides opportunities for students to design and apply assessment, planning, and instructional strategies. Students may be required to instruct in one or more content areas including academic, life, social, prevocational or vocational and/or communication skills.

Survey of Exceptionality - Course provides for the examination of types, characteristics, and causes of various exceptionalities; identifies federal laws as they relate to various populations; and serves as an introduction to the education of exceptional students in the home, school, and community.

Teaching Language Arts to Students with Disabilities - Course provides effective, research-based instruction for struggling readers, including basic literacy and adaptations to facilitate students' access to the general education curriculum. Basic literacy content will be presented, including information about phonological awareness, word study and spelling, fluency, comprehension, and writing across content areas.

Student Teaching

Directed Teaching (EC-4 and Elementary All-Level) - In this capstone course, students will integrate and apply knowledge from their entire program while teaching in collaboration with experienced teachers in the public schools with university guidance and supervision. Students will demonstrate exit-level proficiency in state-adopted and Texas State proficiencies for teachers. Repeatable for credit with different emphasis.

Directed Teaching (4-8) - In this capstone course, students will integrate and apply knowledge from their entire program while teaching in collaboration with experienced teachers in the public schools with university guidance and supervision. Students will demonstrate exit-level proficiency in state-adopted and Texas State proficiencies for teachers.

Directed Teaching (8-12) - Experiences providing opportunities for observation, participation and directed teaching for students enrolled in the curriculum for high school teachers. A minimum of one conference hour per week is required.

Directed Teaching (Secondary All-Level) - Experiences providing opportunities for observation, participation and directed teaching for students enrolled in the curriculum for high school teachers. A minimum of one conference hour per week is required. May be taken for three semester hours credit for all-level certification. Repeatable for credit with different emphasis.



MELL (Mathematics for English Language Learners)

Contacts/Interview Summary

This section provides a summary of the data compiled from the interviews

MELL (Mathematics for English Language Learners) Contacts and Interviews



The members of the ASU MELL Initiative Committee developed a list of contacts and questions for interviews at each of the five Texas State University System institutions. The main purpose of the interviews was to gather pertinent information concerning the mathematics and education course requirements and field experiences for pre-service teachers, and any ELL, LEP, and/or Bilingual practices. The information gathered from the interviews was compiled and summarized and include special comments from individuals interviewed and special projects at the five institutions.

We identified the contacts according to the following criteria:

- Department deans and chairs in Mathematics and in Education
- Teachers of pre-service teacher classes in both mathematics and education
- Teachers of courses that involve ELL and/or LEP in some way
- Special field experience personnel
- Bilingual Directors or Coordinators of the local school district
- Curriculum Directors and/or administrator (if applicable)
- Region Service Center personnel (if applicable)
- Local teachers with current practices involving ELL/LEP (if applicable)

Some of the contacts were not available at the time of our visit due to their busy schedules and previous commitments. We attempted to make contact with those not available by email and/or by phone.

Interviewers:

- Larry D. White -- ASU MELL Initiative Coordinator -- M.A.T. in Mathematics and English
27 years public school experience - grades 6-12 mathematics and computer science
6 years at Angelo State University - Mathematics for Elementary Teachers I & II
- Beth Grounds -- ASU MELL Initiative consultant -- B.S. in all-level special education and elementary education
30 years public school experience -- elementary with special population emphasis

Interview Sites and Dates:

- Texas State University -- April 18-20
- Sam Houston State University -- April 24-26
- Lamar University -- April 26-28
- Angelo State University -- May 4, May 13, June 1
- Sul Ross State University -- May 9-11

(This trip had to be cancelled. The professors were not available to us due to their busy schedules at the end of the semester.)

**MELL (Mathematics for English Language Learners)
Interview Questions**



1. What math and/or education courses do you teach? (you can use course numbers or titles)
2. Which of these courses are required for:
 - a. Secondary Teacher Certification with math as a teaching field
 - b. Middle School (grades 4-8) Teacher Certification with math as a teaching field
 - c. Elementary (K-4) Teacher Certification with a math specialty
 - d. Elementary (K-4) Teacher Certification without a math specialty
 - e. Alternative Certification -- if available
3. Which of these courses address ELL, LEP or Bilingual in some form or another?
 - a. How much time is spent in each of these courses addressing ELL, LEP or Bilingual?
 - b. Do you use any special activities in these courses devoted to ELL, LEP, or Bilingual?
 - c. Do you use any special assessment techniques in these courses for ELL, LEP or Bilingual?
 - d. What chapters in what books are being used in these courses that address ELL, LEP, or Bilingual?
 - e. Can we get copies of any of the projects, activities, or assessments being used in these courses that address ELL, LEP, or Bilingual?
4. What field experiences do you require for your pre-service teachers?
 - a. Do any of these field experiences address ELL, LEP, or Bilingual in some form or another?
5. Are you aware of any field experiences, not required that are available for your pre-service teachers?
 - a. Do any of these field experiences address ELL, LEP, or Bilingual in some form or another?
6. Are there any ELL or LEP or Bilingual practices currently in use at your university?

Contemporary Practices in Math Preservice Education

MELL (Mathematics for English Language Learners) Interview Questions



7. Are there any ELL, LEP, or Bilingual practices in the planning stage for the near future at your university?
8. Are there any ELL or LEP or Bilingual practices currently in use or in the planning stage in the area or at the local schools?
9. Do you know of any local schools' concerns and/or needs for ELL, LEP, and Bilingual students?
10. What language(s) in the local schools fall into the ELL / LEP category?
11. Are there any courses available that can be taken as electives which address ELL, LEP, or Bilingual in some form or another?

MELL (Mathematics for English Language Learners) Summary of Contacts



Mathematics Department

- Deans, Chairs, Heads
 - 5 contacts attempted
 - ✓ 4 interviewed
 - ✓ 1 emailed with no response
- Professors, Lecturers, Instructors
 - 23 contacts attempted
 - ✓ 15 interviewed
 - ✓ 2 emailed with response to interview questions
 - ✓ 6 emailed with no response

Education Department

- Deans, Chairs, Heads
 - 10 contacts attempted
 - ✓ 9 interviewed
 - ✓ 1 emailed with response to field questions
- Professors, Lecturers, Instructors
 - 24 contacts attempted
 - ✓ 18 interviewed
 - ✓ 3 emailed with response to interview questions
 - ✓ 3 emailed with no response

Misc. Contacts

- Local ISD Bilingual Coordinators
 - 2 contacts attempted
 - ✓ 1 interviewed
 - ✓ 1 emailed with response to field questions
- Service Center ESL Coordinators
 - 1 contact attempted
 - ✓ 1 interviewed

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



1. What math and/or education courses do you teach?

- Mathematics courses and education courses can be found on the course templates

2. Which of these courses are required for:

- a. Secondary Teacher Certification with math as a teaching field
- b. Middle School (grades 4-8) Teacher Certification with math as a teaching field
- c. Elementary (K-4) Teacher Certification with a math specialty
- d. Elementary (K-4) Teacher Certification without a math specialty
- e. Alternative Certification -- if available

- Courses and certifications can be found on the course templates

3. Which of these courses address ELL, LEP or Bilingual in some form or another?

- **Mathematics**
 - none specifically, but in general by sharing alternative algorithms
 - some classes use investigation techniques, hands-on manipulatives, and modeling which are good techniques for all students
 - content courses do not address these issues directly
 - methods courses incorporate diversity and some require lesson modifications for ELL students
 - content courses are 80% content and 20% methods
- **Education**
 - Reading Diagnosis and Remediation
 - Teaching Techniques in Secondary School
 - Early Childhood (texts have a section on ELL)
 - Diverse Populations in the Regular Classroom
 - in most cases there is no specific addressing of ELL students but in general
 - methods courses are 80% methods and 20% content review
 - Bilingual courses, ESL courses, and Special Ed courses address special populations

3a. How much time is spent in each of these courses addressing ELL, LEP or Bilingual?

- **Mathematics**
 - none specifically, sometimes in general questioning or through hands-on modeling
- **Education**
 - very little and mostly in general terms
 - some time is spent in methods courses through field experiences

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



3b. Do you use any special activities in these courses devoted to ELL, LEP, or Bilingual?

- **Mathematics** : very little mentioned specifically for ELL, but the following activities were recommended for and beneficial to all students
 - hands-on manipulatives
 - using drawings to solve problems
 - various modeling techniques
 - computers and technology
 - visual displays
 - constructionism: symbology, verbalization, lecture, visualization, use of all senses
 - emphasize pedagogical ideas that can address diverse learners such as activity oriented, problem solving in context, and clarifying vocabulary
- **Education**
 - Reading Diagnosis and Remediation course text contains activities that address various reading difficulties that are used for ELL students
 - Teaching Techniques in the Secondary School course addresses culture and diversity from a general standpoint, emphasizes respect and dignity for all students, discusses differentiated instruction for ELL students, and uses general activities that address teacher bias
 - some time is spent in methods courses through field experiences

3c. Do you use any special assessment techniques in these courses for ELL, LEP or Bilingual?

- **Mathematics**
 - nothing mentioned
- **Education**
 - Reading Diagnosis and Remediation course text contains some assessments
 - nothing else mentioned

3d. What chapters in what books are being used in these courses that address ELL, LEP, or Bilingual?

- **Mathematics**
 - nothing mentioned
- **Education**
 - Reading Diagnosis and Remediation course uses the textbook *Strategies for Reading Assessment and Instruction: Helping Every Child Succeed*, 2nd Edition, D. R. Reutzler & R. B. Cooter Jr., Upper Saddle River: New Jersey, Merrill Prentice Hall.
 - chapters 15 & 16 address ELL
 - the text is set up to give strategies and assessments

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



- Education textbooks by Vande-Walle contains a chapter that addresses ELL

3e. Can we get copies of any of the projects, activities, or assessments being used in these courses that address ELL, LEP, or Bilingual?

- nothing available at that time

4. What field experiences do you require for your pre-service teachers?

- **Mathematics**
 - see the field experience templates
 - further details on these experiences are found in the Mathematics Notes section of this summary
- **Education**
 - see the field experience templates
 - further details on these experiences are found in the Education Notes section of this summary

4a. Do any of these field experiences address ELL, LEP, or Bilingual in some form or another?

- **Mathematics**
 - not directly, but pre-service teachers can choose this type of students to visit
- **Education**
 - experiences in some reading courses include working with special needs students
 - some methods courses have observation criteria that includes ELL students
 - some courses address this by observations and teacher mentoring

5. Are you aware of any field experiences, not required that are available for your pre-service teachers?

- **Mathematics**
 - HOSTS (see Mathematics Notes)
- **Education**
 - HOSTS for reading (see Mathematics Notes)
 - Methods and Materials courses allow pre-service teachers to set up their own all-day field experiences as an individual project

5a. Do any of these field experiences address ELL, LEP, or Bilingual in some form or another?

- only in the sense that the pre-service teacher is assigned to a special needs student or they choose that type of experience

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



6. Are there any ELL or LEP or Bilingual practices currently in use at your university?

- **Mathematics**
 - No (the following comments were made)
 - A good math teacher with good math content knowledge and the ability to handle the classroom atmosphere will find ways to teach all students.
 - It's not the language barrier, it's the inability of teachers to teach math.
- **Education**
 - learning centers - Students develop projects that have lesson plans and strategies for different learners at various levels. One fix does not fit all.
 - hands-on activities and alternative assessments
 - Graduate Program (see Education Notes for Graduate Program details)
 - observing a Bilingual class

7. Are there any ELL, LEP, or Bilingual practices in the planning stage for the near future at your university?

- **Mathematics**
 - (TSU) - Principals of Mathematics I - work on adding an ELL section to this course is in progress
 - (Lamar U.) - current plans are being made to insert a complete unit on ELL for the methods courses
- **Education**
 - (Lamar U.) - There is no Bilingual Ed program at this time, however due to minority populations recent growth in the surrounding areas, the need for a Bilingual program has increased. Discussions and plans for adding the program are in progress.
 - (ASU) - the implementation of Competency 2 of the TExES Pedagogy and Professional Responsibilities for all certifications (see Education Notes for details)

8. Are there any ELL or LEP or Bilingual practices currently in use or in the planning stage in the area or at the local schools?

- nothing mentioned (see Local Notes for other responses)

9. Do you know of any local schools' concerns and/or needs for ELL, LEP, and Bilingual students?

- have quality teachers trained to address ELL students
- public school teachers are asking for any math and/or math/ELL related in-services

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



10. What language(s) in the local schools fall into the ELL / LEP category?

- Spanish (majority), Vietnamese, Korean, Indian, Russian, and assorted Asians

11. Are there any courses available that can be taken as electives which address ELL, LEP, or Bilingual in some form or another?

- **Mathematics**
 - (SHSU) Elementary and Middle School have no electives - Secondary with no second teaching field has 9 hours of electives available (no ELL elective course available).
 - (ASU) new 4-8 Math certification program allows for 19 elective hours (comment) Math for ELL or Reading of Mathematics would be good elective courses for this certification, however, someone has to create these courses first, then someone has to be found to teach them.
- **Education**
 - no time available for electives

Mathematics Notes

- HOSTS (Help One Student To Succeed) learning system
 - optional - pre-service teachers sometimes work with ELL students
 - pre-service teacher is assigned a grade 1-5 student who is struggling in math
 - they have 12 sessions with their assigned student 30 minutes per week per session
 - they keep journals (diaries) on what math content they assisted their student with and what issues they faced
 - the following link provides good information on how the program works
<http://208.33.45.21/archive/story.cfm?path=2003/q1/march/4/20030304009.html&criteria=Vanna%20Almond>
- TxCETP (Texas Collaborative for Excellence in Teacher Preparation)
 - mentor teachers are brought in to speak to pre-service teachers
 - provides cost-free opportunities for pre-service teachers to attend conferences such as CAMT (Conference for the Advancement of Mathematics Teachers).
- Shadow Teacher for a Day
 - pre-service teacher: is responsible for finding a local school and teacher to visit
 - spends a day with the classroom teacher at a local school
 - observes and assists the classroom teacher
 - writes a paper on the experience and what they did that day
- Make-up Critical Class
 - pre-service teacher is required to make up a missed math class or lose points
 - observes math being taught for the length of the class time missed

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



Mathematics Notes (cont.)

- finds their own school or teacher to observe
 - submits time documentation, but a write-up is not required
 - Special Comments from the professors
 - Content courses and methods courses do a lot of repetitive work. Coordination between the math department and the education department needs to come together a little closer and develop these courses in such a way that some of the unneeded repetition is removed and the time is used to go deeper into other needed areas.
 - Math advisor for Secondary certification strongly recommends 2 courses of Spanish.
 - Students that are math literate can transfer math terminology to their language for discussions and then transfer back to English.
 - All teachers need ELL strategies, not just "special populations" teachers.
 - Credibility is crucial for all pre-service teachers. They want and need to hear from regular teachers who have been in the classroom. Textbook teachers lack credibility.
 - Early field experience needs to be limited to observing. Allowing untrained students to work with children's minds can be disastrous. They may be ready to observe but not prepared and ready to mess with their minds.
 - Interesting parable:
Airline pilots and control tower personnel across the country speak "pilot" language. They may not speak the same language but they speak the same "pilot" language that they are trained in. For example: a pilot reports a fire east of the airport to the control tower. The control tower may not understand the words used concerning the fire, but interprets the word east and responds in "pilot" terms by saying you have permission to land at gate 18 on the east runway. They may not be able to converse in their different languages, but they are able to do their jobs because they both speak "pilot" language.
-

Education Notes

- (ASU) Reading Diagnosis and Remediation course professor makes the pre-service teachers aware of Reading Inventory Assessments that can be utilized in the classroom.
 - Diagnosis of reading problems are generally encountered and handled with standard reading techniques. ELL students fall into those reading problem areas.
- (ASU) TExES Pedagogy and Professional Responsibilities for all certifications:
Competency 2
 - The teacher understands student diversity and knows how to plan learning experiences and design assessments that are responsive to differences among students and that promote all students' learning.

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



Education Notes (cont.)

- The beginning teacher knows how to plan and adapt lessons to address students' varied backgrounds, skills, interests, and learning needs, including the needs of English language learners and students with disabilities.
- Special Comments from the professors
 - Pre-service teachers need to be taught not to be workbook oriented math teachers that require memorization. Students cannot be expected to be able to read math textbooks.
 - They need to be taught to start teaching math lessons at the concrete level (manipulatives), then go to representation, and then to abstract. Don't start at abstract.
 - They need to develop a way to have a dialogue with the students and learn how to question students in such a way as to promote creativity not squelch it.
 - Reading literature is not the same as reading math or science.
 - *You Can't Teach What You Don't Know* -- every teacher should read this book about discovering your own biases
- Field Experience details
 - Angelo State University
 - Early Education classes -- 20 hours (2 hours per week for 10 weeks) -- main goal is observation with some assistance -- mainly a junior level class (a few sophomores) -- stay at the assigned school and do not change
 - Math Practicum -- pre-service teachers go to local public and private schools -- work in classes that coincides with their certification level -- senior level course taken just before student teaching
 - Lamar University
 - Phase I -- Preliminary Field experiences consists of 15 hours for each of the two beginning courses (Development and Psychology) for all pre-service teachers at the sophomore level - pre-service teachers are observers only - under specialist mentor teacher
 - Phase II -- Formal Field experiences include 30 hours per course which includes teaching 2 lessons with the math teacher - EC-4 and 4-8 take 5 courses, which includes one course of Classroom Management - 30 hours per course, totaling 150 hours of field work - 30 hours per course, totaling 150 hours of class work - Secondary take 4 courses - 30 hours per course, totaling 120 hours of field work - 30 hours per course, totaling 120 hours of class work
 - schools chosen for field work are very diverse
 - prelim field work is, normally, done at the tougher districts
 - pre-service teachers move to various districts at various times to experience all levels and diversity of students

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



Education Notes (cont.)

- * special notes: tracking pre-service teachers' growth *
 - FIELD FOCUS -- all students keep field service journals throughout their studies - at the end of each semester, they write a focus paper that ties the field experience to the material from respective course - they are required to look for the ways the mentor teachers deal with diverse population, how they address various learning styles, and how they address special populations - this information has to be included in their journals
 - Students requirements in each of the 2 prelim courses before entering college of education -- a disposition is done by the student, responding about themselves - their mentor and instructors respond about the student during the 2 prelim courses as well - students write a 300 word essay on some education issue or question - if students do not score a certain score on the two instruments or if the instruments cause some doubts then an interview is requested to discover the issues in question - this is the first "Stop and Check" point to see if students need to continue in this direction
 - after the first 2 classes, but before student teaching, a second "Stop and Check" point takes place - students do revisions from their dispositions and philosophies, as do their mentors and instructors - students create a discipline management plan and a teaching unit plan - the staff committee meets to discuss the above instruments and then an interview is requested - if all is well or minor discrepancies can be taken care of and their grade point is 2.5 with no grade below a C, then they head to student teaching - otherwise, they are strongly directed in another direction
 - student teaching (special comments) - when students begin student teaching their preparation is such that mentor teachers can sit back, let them teach, and observe - local schools' support system is fantastic and a key to success - retention of teachers appears to be good, but they do not feel they are doing a good job of tracking for a full 5 years
- Sam Houston State University
 - Level 1 and Level 2 field experiences required for all undergraduates -- 10 hours, as early as sophomore year done in Bilingual, Ed Psych, Special Ed, and Human Growth/Development courses - 10 full days done in Methods classes the semester before student teaching, 1 day the first week, 2 consecutive days the second week, 2 consecutive days the next week, 5 consecutive days in the final week - schools chosen for the field are mixed both ethnically and by ability - pre-service teachers move from school to school to experience all levels - pre-service teachers do their field work in their teaching related field
- Alternative Certification
 - Lamar University
 - degree in content area required and the Texas content test passed

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



Education Notes (cont.)

- attend 1 week of full day sessions of workshops to prepare for insertion into the classroom
- complete deficient coursework
- do Fall internship under direction of supervising teacher the entire semester
- work and interact with local school assigned mentor
- Texas State University
 - alternative certification is prominent at TSU
 - students with degrees come to TSU and submit their coursework for review
 - math and education courses are examined to see if they can be used as replacements or if they are deficient and need to take other courses
- Doctorate Program (Lamar University)
 - 2 strands: School Strand for administrators and University Strand for teachers and pedagogy (professor's comment: strands need to be interwoven and not distinct)
 - 48 hours: 24 core curriculum - 12 Effective Schools - 12 Diversity and Multi-culturism
 - students choose concentration areas such as ELL Math for their courses
 - all courses involve "Equity Audits"
 - courses are designed for the students to complete their graduate requirements and, at the same time, acquire knowledge, strategies, and resources for their classrooms and schools
- Graduate Program (Sam Houston State University)
 - 2 week summer seminar required for Special Ed teachers and Diagnosticians
 - 1 day of speakers devoted to working with ELL students, especially designed to assist teachers and diagnosticians in how not to misdiagnose special ed students just because they have a language problem
 - develop support instruction methods and non-biased assessment
 - required for graduate students and diagnosticians before their practicum
 - project required
 - target a special learner or group of learners (many choose ELL)
 - do research and literature reviews
 - design an intervention of 6-8 weeks in collaboration with teachers
 - collaborative teachers or service providers do the interventions while the graduate student monitors, collects data, and evaluates outcomes

Local Notes:

- A recommendation was made to visit with Ms. Gerardo at Pharr San Juan H.S. She has developed her Algebra 1 class in such a way that there is 100% passing of the end of year algebra test. Her classes include many diverse students.

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



Local Notes (cont.)

- A special email interview with Lina Flores, San Marcos ISD Bilingual Coordinator
 - **#4. What field experiences do you require for your pre-service teachers?**
 - **a. Do any of these field experiences address ELL, LEP, or Bilingual?**

Only teachers assigned to teach Bilingual and ESL classrooms receive pre-service instruction associated with English Language Learners. Last summer we had a week-long institute with several workshop choices offered to teachers. State law requires that all teachers receive training on oral language proficiency assessment and other assessment updates such as TAKS and Adequate Yearly Progress assessments. The language proficiency assessment committee also receives training yearly. Some of the training topics BE/ESL teachers receive is associated with ESL strategies, Sheltered Instruction, Bilingual/ESL research; BE/ESL conferences such as NABE and TESOL.
 - **#5. Are you aware of any field experiences, not required, that are available for pre-service teachers?**
 - **a. Do any of these field experiences address ELL, LEP, or Bilingual?**

Several workshops on strategies to teach TAKS are available to teachers through the Education Service Center and through the district's collaborative with Texas State University such as Mathworks and the MIGs consisting of a community of learners focused on math instructional strategies. Currently two teachers have been identified at Hernandez MS who will serve as the MELL teachers for comparative analysis of the study.
 - **#6. Are there any ELL or LEP or Bilingual practices currently in use at TSU?**

The MELL grant will explore teacher strategies and techniques and perhaps offer viable options to pursue new avenues to trained math teachers to work with English Language Learners in a way that will produce optimum results.
 - **#7. Are there any ELL, LEP, or Bilingual practices in the planning stage at TSU?**

TSU will implement the MELL grant and will continue the Mathworks summer program as well as the sunrise math tutorials and the MIGs
 - **#8. Are there any ELL or LEP or Bilingual practices currently in use or in the planning stage in the area or at the local schools?**

San Marcos CISD will open two newcomer centers starting next school year made possible through a grant and local district funds. Several software programs and resources will be used.
 - **#9. Do you know of any local schools' concerns and/or needs for ELL, LEP, and Bilingual students?**

Students need parallel English and Spanish textbooks at all levels as well as state adoption ESL resources at the high school level. We will be using newly adopted ESL materials for K-5 (Harcourt's Moving Into English) and 6-8 (High Point from Hampton Brown) next year.

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



Local Notes (cont.)

- A special phone interview with Deborah Huntsucker, ESL Coordinator at Region XV ESC
 - **1. What is your position and what does it involve?**
I am the ESL coordinator. I work with about 30 Title III schools.
 - **2. What services do you provide ELL teachers concerning teaching math and reading skills for math?**
Besides workshops for ELL teachers, we have a Sheltered Instruction Model that we use to teach strategies for teaching reading and math to content teachers.
 - **3. What would you like to see in math course requirements and teacher education experiences in pre-service training?**
Enough training so that teachers can work at a higher level than their students.
 - **4. What would it take to bring career teachers (post service) to workshops to improve or refresh their math teaching skills?**
Our problem is schools getting substitutes to release teachers to attend workshops. What works best is money...there isn't money to pay stipends and teachers are just too busy unless they have an incentive. San Angelo is requiring an ESL endorsement for employment and that helps our attendance.
 - **5. What special activities and techniques do you teach for working with ELL students?**
We use something called Total Physical Response where we incorporate all the senses...everyone learns better with hands-on activities. We use a program with software called the Rosetta Stone that has been successful.
 - **6. How many ELL workshops do you do in a year?**
We cluster Title III schools and we do four clusters a year. We will do 30-35 workshops from June to May.
 - **7. How important is training for teachers who teach ELL students?**
We know that migrant and ELL students are always at the bottom in TAKS scores. It is very important.

Special On-Going Projects to Note: (further investigation suggested)

- Angelo State University
 - Interactive Bulletin Board Project for elementary pre-service teachers (http://www.angelo.edu/faculty/jbarnard/bulletin_board.htm)
 - Mathematics Initiative for English Language Learners (MELL) Summer Institute (<http://www.angelo.edu/dept/education/MELL.html>)
- Lamar University
 - Math Nerds Program -- problems are currently being translated to Spanish, eventually other languages will be added (<http://www.mathnerds.com>)
 - Junior Achievement Program -- lessons created for real world applications of math

MELL (Mathematics for English Language Learners) Summary: Compilation of Interview Questions



Special On-Going Projects (cont.)

- Novice Teacher Induction Program -- 3 year grant (ended this year) -- retired master teachers are given 9-10 mentees -- graduate seminar attended every other week to solve problems with teachers
- TexBest Training -- hosted to improve first year teacher induction
- Teachers helping Teachers -- Fall seminar for teachers to work with mentors - different groups choose special problems dealing with various areas including ELL - they work on the problems and share resources with other and other groups
- Sam Houston State University
 - On-going curriculum development for the middle school certification -- The mathematics courses required for this certification have been completely rewritten to meet the middle school pre-service teacher needs. Reading about the changes they made from their mathematics curriculum to meet the middle school teacher needs is strongly recommended.
- Sul Ross State University
 - Quick Start program -- Ed 5100: The Pedagogy of Mathematics for the English Language Learner -- online course that addresses best practices in ELL instruction (<http://www.sulross.edu>)
- Texas State University
 - Hernandez Middle School (5th & 6th) -- Everyday math curriculum implementation
 - Math Works Program
 - Connective Math Project -- One of 12 Professional Development Modules that includes ELL
 - CIMA (Curriculum and Instruction: Math Assessment) -- students take a formative and summative test to determine what they know and what they don't know -- when they pass it then they can enter the teacher education program -- the results of students strengths and weaknesses go to the professors to assist in improving curriculum



MELL (Mathematics for English Language Learners)

Analysis

This section provides observations and conclusions based on the compiled data and research

MELL (Mathematics for English Language Learners) Analysis



Observations

According to the interviews, course descriptions, and course requirements outlined in the charts, the following observations are apparent concerning the Texas State University System institutions:

8-12

- The mathematics courses can be grouped in the following categories: pre-calculus, calculus, geometry, probability and statistics, problem solving, linear algebra, abstract algebra, advanced calculus, and survey.
- Secondary programs require from 10-12 math courses.
- Some universities allow a minor for secondary certification and others use teacher education courses for the remaining degree requirements.
- All programs have 3 semesters of Calculus.
- All universities appear to have the same curriculum.
- Secondary mathematics teachers are being trained like professional mathematicians.
- There are no field-experience requirements in the mathematics courses.
- Although all programs require content area reading and a methods course, none are specifically targeting reading for mathematics.
- Secondary programs have the fewest teacher education course requirements.
- No special education courses are required.
- From the course descriptions, there is no specified ELL training in any secondary program.
- In all programs, field experiences are provided in the teacher education courses.

4-8

- Since 4-8 programs are new, these programs are under study and revision.
- Middle school programs vary between 3 and 14 mathematics courses depending on the concentration.
- The 4-8 Generalist and 4-8 Bilingual Specialist programs require at most 6 mathematics courses, therefore these teachers may not have sufficient mathematics preparation to teach mathematics in the middle school environment.
- There is no consistency in the math curriculum for all of the programs.
- Some schools are currently revising mathematics courses for the 4-8 level.
- Although some programs require content area reading, none are specifically targeting reading for mathematics.
- Between 1 and 5 courses in reading are required.
- All programs have a math methods course.
- Most certification programs require at least one special education course.
- From the course descriptions, there is no specified ELL training in most 4-8 programs.
- Only one university has a bilingual specialist certification program.
- Mathematics courses for 4-8 certification do not have field experience requirements.

MELL (Mathematics for English Language Learners) Analysis



- Optional field experiences are provided in the HOSTS (Help One Student To Succeed) program for some mathematics courses. Because the HOSTS program assigns a preservice teacher to an elementary student who is struggling in reading or mathematics, this field experience might provide access to ELL students.
- In all programs, field experiences are provided in the teacher education courses.

EC-4

- Elementary programs generally require 3 mathematics courses, with two certification programs requiring 4.
- Elementary trained teachers take the mathematics core requirement of College Algebra and only two foundations of mathematics courses.
- All universities require at least one special education course.
- All universities require one math methods course.
- Although all programs require reading courses, none are specifically targeting reading for mathematics.
- Mathematics courses for elementary certification do not have field experience requirements.
- Optional field experiences are provided in the HOSTS (Help One Student To Succeed) program for some mathematics courses. Because the HOSTS program assigns a preservice teacher to an elementary student who is struggling in reading or mathematics, this field experience might provide access to ELL students.
- Between 4 and 6 courses in reading are required.
- All universities require at least one special education course for those not seeking special education certification.
- Three universities have bilingual generalist certification program.
- Only one university has an ESL (English as a Second Language) certification program.
- In all programs, field experiences are provided in the teacher education courses.

MELL (Mathematics for English Language Learners) Analysis



Conclusions

After reviewing the course descriptions, course requirements, and interview transcripts, the teacher education programs may be improved by including the following for **all** certifications:

- Expanded training in planning and adapting lessons to directly address the needs of diverse learners, particularly ELL students (TEXES Pedagogy and Professional Responsibilities for all certifications, Domain I, Competency 2)
- A special education course to diagnose and address special populations including ELL students
- Reading/Writing for mathematics
- Additional mathematics courses for elementary certification
- Redesigned mathematics courses addressing 4-8 and elementary needs
- Additional mathematics methodology training
- Required field experiences in mathematics courses
- Required field experiences with ELL students
- Modeling with technology, manipulatives, graphics, visual demonstrations, kinesthetic activities, writing, and verbal descriptions for secondary mathematics courses
- Modeling with technology, manipulatives, graphics, visual demonstrations, kinesthetic activities, writing, and verbal descriptions for College Algebra
- Activities designed to rewrite each Mathematics TEKS objective into several key statements that can be easily understood by ELL students