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Class B or Alt A

BIOLOGY

ALL SCIENCE (AS) Programs
Standard 1 Content Knowledge
Effective teachers of science understand and articulate the knowledge and practices of contemporary science. They interrelate and interpret important concepts, ideas, and applications in their fields of certification. Candidates:
AS 1.1 Understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure/certification and supporting fields as recommended by the National Science Teachers Association.

AS 1.2 Understand the central concepts of the supporting disciplines and the supporting role of science-specific technology.

AS 1.3 Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching 6-12 students.

ALL SCIENCES (AS) Programs
Standard 2 Content Pedagogy
Effective teachers of science understand how students learn and develop scientific knowledge. Preservice teachers use scientific inquiry to develop this knowledge for all students.

AS 2.1 Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.

AS 2.2 Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.

AS 2.3 Design instruction and assessment strategies that confront and address naïve concepts/preconceptions.

ALL SCIENCES (AS) Programs
Standard 3 Learning Environments
Effective teachers of science are able to plan for engaging all students in science learning by setting appropriate goals that are consistent with knowledge of how students learn science and are aligned with state and national
standards. The plans reflect the nature and social context of science, inquiry, and appropriate safety considerations. Candidates design and select learning activities, instructional settings, and resources—including science-specific technology, to achieve those goals; and they plan fair and equitable assessment strategies to evaluate whether the learning goals are met. Candidates:

AS 3.1 Use a variety of strategies that demonstrate the candidates’ knowledge and understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.

AS 3.2 Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.

AS 3.3 Plan fair and equitable assessment strategies to analyze student learning and to evaluate if the learning goals are met. Assessment strategies are designed to continuously evaluate preconceptions and ideas that students hold and the understandings that students have formulated.

AS 3.4 Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure/certification area.

ALL SCIENCES (AS) Programs Standard 4 Safety
Effective teachers of science can, in a 6-12 classroom, demonstrate and maintain chemical safety, safety procedures, and the ethical treatment of living organisms to be used in the 6-12 science classroom as appropriate to their area of certification.

AS 4.1 Design and demonstrate activities in a 6-12 classroom that demonstrate an ability to implement emergency procedures and the maintenance of safety equipment, policies and procedures that comply with established state and/or national guidelines. Candidates ensure safe science activities appropriate for the abilities of all students.

AS 4.2 Design and demonstrate activities in a 6-12 classroom that demonstrate ethical decision-making with respect to the treatment of all living organisms in and out of the
classroom, emphasizing safe, humane, and ethical treatment of animals and complying with the legal restrictions on the collection, keeping, and use of living organisms.

**ALL SCIENCES (AS) Programs: Standard 5 Impact on Student Learning**

Effective teachers of science provide evidence to show that 6-12 students’ understanding of major science concepts, principles, theories, and laws have changed as a result of instruction by the candidate and that student knowledge is at a level of understanding beyond memorization. Candidates provide evidence for the diversity of students they teach.

AS 5.1 Collect, organize, analyze, and reflect on diagnostic, formative and summative evidence of a change in mental functioning demonstrating that scientific knowledge is gained and/or corrected.

AS 5.2 Provide data to show that 6-12 students are able to distinguish science from non-science, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science.

AS 5.3 Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

**ALL SCIENCES (AS) Programs: Standard 6 Professional Knowledge and Skills**

Effective teachers of science strive continuously to improve their knowledge and understanding of the ever-changing knowledge base of both content and science pedagogy, including approaches for addressing inequities and inclusion for all students in science. They identify with and conduct themselves as part of the science education community. Candidates:

AS 6.1 Engage in professional development opportunities in their content field such as talks, symposiums, research opportunities, or projects within their community.

AS 6.2 Engage in professional development opportunities such as conferences, research opportunities, or projects within their community.

**GS1.6.1**

**Advanced Competencies for Biology**

Knowledge of:

GS1.6.1.1 Bioenergetics including major biochemical pathways.
GS1.6.1.2 Biochemical interactions of organisms and their environments.

GS1.6.1.3 Molecular genetics and heredity and mechanisms of genetic modification.

GS1.6.1.4 Molecular basis for evolutionary theory and classification.

GS1.6.1.5 Causes, characteristics, and avoidance of viral, bacterial, and parasitic diseases.

GS1.6.1.6 Issues related to living systems such as genetic modification, uses of biotechnology, cloning, and pollution from farming.

GS1.6.1.7 Historical development and perspectives in biology including contributions of significant figures and underrepresented groups, and the development theories in biology.

GS1.6.1.8 How to design, conduct, and report research in biology.

GS1.6.1.9 Applications of biology and biotechnology in society, business, industry, and health fields.

Biology (B) Standard 1 Content Knowledge

B1.1 Competency Requirements for All Science Teachers
Candidates in biology demonstrate knowledge of:

B1.1.1 Multiple ways to organize perceptions of the world and how systems organize the studies and knowledge of science.

B1.1.2 Nature of scientific evidence and the use of models for explanation.

B1.1.3 Measurement as a way of knowing and organizing observations of constancy and change.

B1.1.4 Development of natural systems and factors that result in change over time or equilibrium.

B1.1.5 Interrelationships of form, function, and behaviors in living and nonliving systems.
Standard B1.2 Core Competencies in Biology
Candidates in biology demonstrate knowledge of:

B1.2.1 Life processes in living systems including organization of matter and energy.

B1.2.2 Similarities and differences among animals, plants, fungi, microorganisms, and viruses.

B1.2.3 Principles and practices of biological classification.

B1.2.4 Theory and principles of biological change over time.

B1.2.5 Ecological systems including the interrelationships and dependencies of organisms with each other and their environments.

B1.2.6 Population dynamics and the impact of population on its environment.

B1.2.7 General concepts of genetics and heredity.

B1.2.8 Organization and functions of cells and multi-cellular systems.

B1.2.9 Behavior of organisms and their relationships to social systems.

B1.2.10 Regulation of biological systems including homeostatic mechanisms.

B1.2.11 Fundamental processes of modeling and investigating in the biological sciences.

B1.2.12 Applications of biology in environmental quality and in personal and community health.

Standard B1.3 Advanced Competencies in Biology
Candidates in biology demonstrate knowledge of:

B1.3.1 Bioenergetics including major biochemical pathways.

B1.3.2 Biochemical interactions of organisms and their environments.
B1.3.3 Molecular genetics and heredity and mechanisms of genetic modification.

B1.3.4 Molecular basis for evolutionary theory and classification.

B1.3.5 Causes, characteristics, and avoidance of viral, bacterial, and parasitic diseases.

B1.3.6 Issues related to living systems such as genetic modification, uses of biotechnology, cloning, and pollution from farming.

B1.3.7 Historical development and perspectives in biology including contributions of significant figures and underrepresented groups, and the development theories in biology.

B1.3.8 How to design, conduct, and report research in biology.

B1.3.9 Applications of biology and biotechnology in society, business, industry, and health fields.

**B1.4 Supporting Competencies for Biology**
Candidates in biology demonstrate knowledge of:

**B1.4.1 Chemistry**

B1.4.1.1 General chemistry.

B1.4.1.2 Biochemistry.

B1.4.1.3 Basic chemistry laboratory techniques.

**B1.4.2 Physics**

B1.4.2.1 Light.

B1.4.2.2 Sound.
B1.4.2.3 Optics.

B1.4.2.4 Electricity.

B1.4.2.5 Energy and order.

B1.4.2.6 Magnetism.

B1.4.2.7 Thermodynamics.

**B1.4.3 Earth and Space Sciences:**

B1.4.3.1 Energy and geochemical cycles.

B1.4.3.2 Climate.

B1.4.3.3 Oceans.

B1.4.3.4 Weather.

B1.4.3.5 Natural resources.

B1.4.3.6 Changes in the Earth.

**B1.4.4 Mathematics:**

B1.4.4.1 Probability.

B1.4.4.2 Statistics.
BUSINESS MARKETING

Standard 1 Content Knowledge and Skills

CTE 1.1 Candidates have a depth and breadth of knowledge and skills appropriate to the specific teaching field, as further detailed in the rules for each program leading to a Class B or alternative Class A Professional Educator Certificate in Career and Technical Education.

CTE 1.2 Candidates operate a computer and effectively use the Internet and software, including word processing and spreadsheet programs, for instructional and management purposes.

Standard 2 Educating for the Work Place: Candidates are prepared to develop the talents and skills of students in grades 6-12 in classroom settings that are rigorous, progressive, and certifies to industry standards.

CTE 2.1 Candidates develop curricula based on career clusters and pathways.

CTE 2.2 Candidates adapt curricula to industry needs in local areas.

CTE 2.3 Candidates work with students to develop skills in preparing job applications and resumes and interviewing.

CTE 2.4 Candidates incorporate skills in reading and mathematical literacy into the career and technical curricula and in the lessons they teach to students.

CTE 2.5 Candidates incorporate the teaching of soft skills into instruction, including traits such as reliability, working well with others, and maintaining a positive attitude.

CTE 2.6 Candidates are able to manage time effectively to provide both direct instruction and hands-on learning.

CTE 2.7 Candidates develop an appropriate syllabus based on the Alabama Course of Study: Career and Technical Education.

Standard 3 Assessment: Candidates use multiple forms of assessment in making educational decisions and guiding students to make wise decisions in career planning.
CTE 3.1 Candidates research information about current assessments aligned to industry-recognized standards and leading to credentials/certifications of Career Readiness Indicators (CRIs) appropriate to the particular teaching field, such as Servsafe for family and consumer sciences programs and Microsoft Office for business/marketing programs.

CTE 3.2 Candidates break complex tasks into component parts when designing performance assessments and rubrics.

CTE 3.3 Candidates are able to document student learning in folders or portfolios.

CTE 3.4 Candidates are able to use career planning assessments, such as KUDER, to identify students’ interests and aptitudes and are able to use the results appropriately.

CTE 3.5 Candidates research and conduct safety assessments, as appropriate to the particular teaching field, to ensure each student has passed the appropriate safety tests for general and particular equipment.

**Standard 4 Learning Environments:** Candidates create and manage safe learning environments for all students.

CTE 4.1 Candidates require students to use appropriate personal protective equipment at all times.

CTE 4.2 Candidates provide appropriate modifications and accommodations, especially those related to safety, to implement individualized educational programs (IEPs) for students with special needs.

**Standard 5 Career and Technical Programs:** Candidates are aware of the unique aspects of career and technical programs, including program review, working effectively with local business and industry, and managing budgets effectively.

CTE 5.1 Candidates are familiar with the requirements of the Alabama State Department of Education (ALSDE) for Business and Industry Certification (BIC) review.

CTE 5.2 Candidates demonstrate the skills to develop and maintain an active advisory committee.
CTE 5.3 Candidates can work with annual budgets for programs and are aware of state and federal funding sources.

CTE 5.4 Candidates understand federal and state mandates governing instructional programs in career and technical education.

CTE 5.5 Candidates work with school counselors and career coaches to implement four-year plans and the selection of appropriate academic courses.

CTE 5.6 Candidates become affiliated with the appropriate career and technical student organizations for their teaching fields, such as Future Farmers of America (FFA) or Future Business Leaders of America (FBLA).

CTE 5.7 Candidates advise and facilitate the activities of student organizations related to career and technical education.

Standard 6 Professionalism and Ethical Practice

CTE 6.1 Candidates are aware of the continuing education unit (CEU) requirements for renewing their Alabama Professional Educator Certificates.

CTE 6.2 Candidates are aware of and adhere to ethical considerations for offering services to the public through classroom activities and career and technical student organizations.

CTE 6.3 Candidates are aware of state and national professional organizations.

CTE 6.4 Candidates are aware of and participate in district, state, and national conferences as much as possible.

Business and Marketing Education (BM)
Standard 1 Content Knowledge and Skills. Prior to program completion:

BM 1.1 Candidates know and apply components of the accounting cycle (e.g., analysis of source documents, procedures for journalizing and posting transactions to ledgers, creating financial statements, performing adjusting and closing entries) as well as uses of computerized accounting packages and other financial software applications.
BM 1.2 Candidates know and apply principles and procedures for personal and business financial management while completing projects that require decision making skills (e.g. budgeting, saving, personal income tax, investing, retirement planning, and personal banking).

BM 1.3 Candidates know and apply key marketing principles and concepts including, but not limited to customer service, research, selling, promotion, and distribution in both domestic and international markets.

BM 1.4 Candidates know and apply cultural differences in language, values, social behavior, and business protocol that affect marketing strategies and concepts, customer service, sales, and promotion.

BM 1.5 Candidates can describe changes in business and economic trends.

BM 1.6 Candidates can identify and analyze various management principles and types of business ownership.

BM 1.7 Candidates apply formal/informal communications skills and techniques as used in the corporate culture. Examples include: listening skills, nonverbal communication, oral communication skills, business document composition and production, telephone skills and etiquette, electronic communication skills and etiquette, presentation development and delivery, etc.

BM 1.8 Candidates can interpret the role of leadership, teamwork, and effective communication in the workplace.

BM 1.9 Candidates develop a business plan that includes factors related to financing, marketing, and legal responsibilities of business owners.

BM 1.10 Candidates understand and apply knowledge of the purpose, characteristics, and classifications of business, labor, and consumer laws.

BM 1.11 Candidates can explain consumer rights, services of financial institutions, saving and investing plans, credit laws, types of insurance (personal and commercial), tax forms, and retirement planning.
BM 1.12 Candidates utilize concepts pertaining to human resource management, interpersonal skills, and career development.

BM 1.13 Candidates are able to understand ethics in society and identify ethical business practices.
BM 1.14 Candidates demonstrate the ability to teach entrepreneurial concepts.

BM 1.15 Candidates know and apply the standard features and operation of typical business, information processing, and productivity software.

BM 1.16 Candidates demonstrate an understanding of computer-based multimedia tools.

BM 1.17 Candidates are familiar with current computer platforms and the operating systems commonly used.

BM 1.18 Candidates understand the principles of computer networks.

BM 1.19 Candidates demonstrate functional knowledge of internal computer organization and architecture, and a computer programming language.

BM 1.20 Candidates demonstrate proper use of typical business, information processing, and productivity software to solve application problems.

BM 1.21 Candidates understand current computer platforms and operating systems.

BM 1.22 Candidates can explain the internal computer operation.

BM 1.23 Candidates understand emerging technologies.

BM 1.24 Candidates demonstrate the use of technology to access information, solve problems, collect data, manage information, and make decisions.

BM 1.25 Candidates can evaluate, select, and use various digital devices, software, and related technology to support the instructional and learning process.
Business and Marketing Education
Standard 2: Professionalism and Ethical Practice

BM 2.1 Candidates maintain current knowledge in trends about career opportunities in the field of business and technology and adhere to the Alabama Educator Code of Ethics.
CHEMISTRY

ALL SCIENCE (AS) Programs

Standard 1  Content Knowledge
Effective teachers of science understand and articulate the knowledge and practices of contemporary science. They interrelate and interpret important concepts, ideas, and applications in their fields of certification. Candidates:

AS 1.1 Understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure/certification and supporting fields as recommended by the National Science Teachers Association.

AS 1.2 Understand the central concepts of the supporting disciplines and the supporting role of science-specific technology.

AS 1.3 Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching 6-12 students.

ALL SCIENCES (AS) Programs

Standard 2  Content Pedagogy
Effective teachers of science understand how students learn and develop scientific knowledge. Preservice teachers use scientific inquiry to develop this knowledge for all students.

AS 2.1 Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.

AS 2.2 Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.

AS 2.3 Design instruction and assessment strategies that confront and address naïve concepts/preconceptions.

ALL SCIENCES (AS) Programs

Standard 3  Learning Environments
Effective teachers of science are able to plan for engaging all students in science learning by setting appropriate goals that are consistent with knowledge of how students learn science and are aligned
with state and national standards. The plans reflect the nature and social context of science, inquiry, and appropriate safety considerations. Candidates design and select learning activities, instructional settings, and resources—including science-specific technology, to achieve those goals; and they plan fair and equitable assessment strategies to evaluate whether the learning goals are met. Candidates:

AS 3.1 Use a variety of strategies that demonstrate the candidates’ knowledge and understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.

AS 3.2 Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.

AS 3.3 Plan fair and equitable assessment strategies to analyze student learning and to evaluate if the learning goals are met. Assessment strategies are designed to continuously evaluate preconceptions and ideas that students hold and the understandings that students have formulated.

AS 3.4 Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure/certification area.

**ALL SCIENCES (AS) Programs**

**Standard 4 Safety**

Effective teachers of science can, in a 6-12 classroom, demonstrate and maintain chemical safety, safety procedures, and the ethical treatment of living organisms to be used in the 6-12 science classroom as appropriate to their area of certification.

AS 4.1 Design and demonstrate activities in a 6-12 classroom that demonstrate an ability to implement emergency procedures and the maintenance of safety equipment, policies and procedures that comply with established state and/or national guidelines. Candidates ensure safe science activities appropriate for the abilities of all students.

AS 4.2 Design and demonstrate activities in a 6-12 classroom that demonstrate ethical decision-making with respect to the treatment of all living organisms in and out of the classroom, emphasizing safe, humane, and ethical treatment of animals and complying with the legal restrictions on the collection, keeping, and use of living organisms.
ALL SCIENCES (AS) Programs: Standard 5 Impact on Student Learning
Effective teachers of science provide evidence to show that 6-12 students’ understanding of major science concepts, principles, theories, and laws have changed as a result of instruction by the candidate and that student knowledge is at a level of understanding beyond memorization. Candidates provide evidence for the diversity of students they teach.

AS 5.1 Collect, organize, analyze, and reflect on diagnostic, formative and summative evidence of a change in mental functioning demonstrating that scientific knowledge is gained and/or corrected.

AS 5.2 Provide data to show that 6-12 students are able to distinguish science from non-science, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science.

AS 5.3 Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

ALL SCIENCES (AS) Programs: Standard 6 Professional Knowledge and Skills
Effective teachers of science strive continuously to improve their knowledge and understanding of the ever-changing knowledge base of both content and science pedagogy, including approaches for addressing inequities and inclusion for all students in science. They identify with and conduct themselves as part of the science education community. Candidates:

AS 6.1 Engage in professional development opportunities in their content field such as talks, symposiums, research opportunities, or projects within their community.

AS 6.2 Engage in professional development opportunities such as conferences, research opportunities, or projects within their community.

Chemistry (C)
Standard 1 Content Knowledge

C1.1 Competency Requirements for All Science Teachers. Candidates in chemistry demonstrate knowledge of:

C1.1.1 Multiple ways to organize perceptions of the world and how systems organize the studies and knowledge of science.
C1.1.2 Nature of scientific evidence and the use of models for explanation.

C1.1.3 Measurement as a way of knowing and organizing observations of constancy and change.

C1.1.4 Development of natural systems and factors that result in change over time or equilibrium.

C1.1.5 Interrelationships of form, function, and behaviors in living and nonliving systems.

**C1.2 Core Competencies in Chemistry.** Candidates in chemistry demonstrate knowledge of:

C1.2.1 Fundamental structures of atoms and molecules.

C1.2.2 Basic principles of ionic, covalent, and metallic bonding.

C1.2.3 Physical and chemical properties and classification of elements including periodicity.

C1.2.4 Chemical kinetics and thermodynamics.

C1.2.5 Principles of electrochemistry.

C1.2.6 Mole concept, stoichiometry, and laws of composition.

C1.2.7 Transition elements and coordination compounds.

C1.2.8 Acids and bases, oxidation-reduction chemistry, and solutions.

C1.2.9 Fundamental biochemistry.

C1.2.10 Functional and polyfunctional group chemistry.

C1.2.11 Environmental and atmospheric chemistry.

C1.2.12 Fundamental processes of investigating in chemistry.

C1.2.13 Applications of chemistry in personal and community health and environmental quality.

**C1.3 Advanced Competencies in Chemistry.** Candidates in chemistry demonstrate knowledge of:

C1.3.1 Molecular orbital theory, aromaticity, metallic and ionic structures, and correlation to properties of matter.
C1.3.2 Superconductors and correlation principles of metallurgy.

C1.3.3 Advanced concepts of chemical kinetics, and thermodynamics.
C1.3.4 Lewis adducts and coordination compounds.
C1.3.5 Solutions, colloids, and colligative properties.
C1.3.6 Major biological compounds and natural products.
C1.3.7 Solvent system concepts including non-aqueous solvents.
C1.3.8 Chemical reactivity and molecular structure including electronic and steric effects.
C1.3.9 Organic synthesis and organic reaction mechanisms.
C1.3.10 Energy flow through chemical systems.
C1.3.11 Issues related to chemistry including ground water pollution, disposal of plastics, and development of alternative fuels.
C1.3.12 Historical development and perspectives in chemistry including contributions of significant figures and underrepresented groups, and the development of theories in chemistry.
C1.3.13 How to design, conduct, and report research in chemistry.
C1.3.14 Applications of chemistry and chemical technology in society, business, industry, and health fields.

C1.4 Supporting Competencies for Chemistry. Candidates in chemistry demonstrate knowledge of:

C1.4.1 Chemistry:

C1.4.1.1 Molecular Chemistry.
C1.4.1.2 Bioenergetics.
C1.4.1.3 Ecology.

C1.4.2. Earth Science:

C1.4.2.1 Geochemistry.
C1.4.2.2 Cycles of matter.
C1.4.2.3 Energetics of Earth systems.

**C1.4.3 Physics:**
C1.4.3.1 Energy.
C1.4.3.2 Stellar change over time.
C1.4.3.3 Properties and function of waves.
C1.4.3.4 Properties and functions of motions.
C1.4.3.5 Properties and function of forces.
C1.4.3.6 Electricity.
C1.4.3.7 Magnetism.

**C1.4.4 Mathematics and Statistical Concepts:**
C1.4.4.1 Statistics.
C1.4.4.2 Use of differential equations.
C1.4.4.3 Calculus.
EARLY CHILDHOOD

Standard 1 Promoting Child Development and Learning
Candidates prepared in early childhood degree programs are grounded in a child development knowledge base. They use their understanding of young children's characteristics and needs, and of multiple interacting influences on children's development and learning, to create environments that are healthy, respectful, supportive, and challenging for each child. Prior to program completion prospective early childhood teachers:

1.1 Know and understand young children’s characteristics and needs, from birth through age 8.

1.2 Know and understand the multiple influences on early development and learning.

1.3 Use developmental knowledge to create healthy, respectful, supportive, and challenging learning environments for young children.

Standard 2 Building Family and Community Relationships
Candidates prepared in early childhood degree programs understand that successful early childhood education depends upon partnerships with children’s families and communities. They know about, understand, and value the importance and complex characteristics of children’s families and communities. They use this understanding to create respectful, reciprocal relationships that support and empower families, and to involve all families in their children’s development and learning. Prior to program completion prospective early childhood teachers:

2.1 Know about and understand diverse family and community characteristics.

2.2 Support and engage families and communities through respectful, reciprocal relationships.

2.3 Involve families and communities in young children’s development and learning.

Standard 3 Observing, Documenting, and Assessing to Support Young Children and Families. Candidates prepared in early childhood degree programs understand that child observation, documentation, and other forms of assessment are central to the practice of all early childhood professionals. They know about and understand the goals, benefits, and uses of assessment. They know about and use systematic observations, documentation, and other effective assessment strategies in a responsible way, in partnership with families and other
professionals, to positively influence the development of every child. Prior to program completion prospective early childhood teachers:

3.1 Understand the goals, benefits, and uses of assessment – including its use in development of appropriate goals, curriculum, and teaching strategies for young children.

3.2 Know about and use observation, documentation, and other appropriate assessment tools and approaches, including the use of technology in documentation, assessment and data collection.

3.3 Understand and practice responsible assessment to promote positive outcomes for each child, including the use of assistive technology for children with disabilities.

3.4 Know about assessment partnerships with families and with professional colleagues to build effective learning environments.

Standard 4 Using Developmentally Effective Approaches
Candidates prepared in early childhood degree programs understand that teaching and learning with young children is a complex enterprise, and its details vary depending on children’s ages, characteristics, and the settings within which teaching and learning occur. They understand and use positive relationships and supportive interactions as the foundation for their work with young children and families. Candidates know, understand, and use a wide array of developmentally appropriate approaches, instructional strategies, and tools to connect with children and families and positively influence each child’s development and learning. Prior to program completion prospective early childhood teachers:

4.1 Understand positive relationships and supportive interactions as the foundation of their work with young children.

4.2 Know and understand effective strategies and tools for early education, including appropriate uses of technology.

4.3 Use a broad repertoire of developmentally appropriate teaching/learning approaches.

4.4 Reflect on their own practice to promote positive outcomes for each child.
Standard 5 Using Content Knowledge to Build Meaningful Curriculum
Candidates prepared in early childhood degree programs use their knowledge of academic disciplines to design, implement, and evaluate experiences that promote positive development and learning for each and every young child. Candidates understand the importance of developmental domains and academic (or content) disciplines in early childhood curriculum. They know the essential concepts, inquiry tools, and structure of content areas, including academic subjects, and can identify resources to deepen their understanding. Candidates use their own knowledge and other resources to design, implement, and evaluate meaningful, challenging curriculum that promotes comprehensive developmental and learning outcomes for every young child. Prior to program completion prospective early childhood teachers:

5.1 Understand content knowledge and resources in academic disciplines: language and literacy; the arts – music, creative movement, dance, drama, visual arts; mathematics; science, physical activity, physical education, and health, and safety; and social studies.

5.2 Know and use central concepts, inquiry tools, and structures of content areas or academic disciplines.

5.3 Use their own knowledge, appropriate learning standards, and other resources to design, implement, and evaluate developmentally meaningful and challenging curriculum for each child.

Standard 6 Becoming a Professional
Candidates prepared in early childhood degree programs identify and conduct themselves as members of the early childhood profession. They know and use ethical guidelines and other professional standards related to early childhood practice. They are continuous, collaborative learners who demonstrate knowledgeable, reflective and critical perspectives on their work, making informed decisions that integrate knowledge from a variety of sources. They are informed advocates for sound educational practices and policies. Prior to program completion prospective early childhood teachers:

6.1 Identify and involves oneself with the early childhood profession.

6.2 Know about and uphold ethical standards and other early childhood professional guidelines.
6.3 Engage in continuous, collaborative learning to inform practice; using technology effectively with young children, with peers, and as a professional resource.

6.4 Engage in informed advocacy for young children and the early childhood profession.
ELEMENTARY

Standard 1 Development, Learning, and Motivation
Candidates know, understand, and use the major concepts, principles, theories, and research related to development of children and young adolescents to construct learning opportunities that support individual students’ development, acquisition of knowledge, and motivation.

Standard 2 Curriculum

2.1 Reading, writing, and oral language. Candidates demonstrate a high level of competence in use of English language arts and they know, understand, and use concepts from reading, language and child development, to teach reading, writing, speaking, viewing, listening, and thinking skills and to help students successfully apply their developing skills to many different situations, materials, and ideas.

2.2 Science. Candidates know, understand, and use fundamental concepts of physical, life, and earth/space sciences. Candidates can design and implement age-appropriate inquiry lessons to teach science, to build student understanding for personal and social applications, and to convey the nature of science.

2.3 Mathematics. Candidates know, understand, and use the major concepts and procedures that define number and operations, algebra, geometry, measurement, and data analysis and probability. In doing so, they consistently engage problem solving, reasoning and proof, communication, connections, and representation.

2.4 Social studies. Candidates know, understand, and use the major concepts and modes of the social studies—the integrated study of history, geography, the social sciences, and other related areas—to promote elementary students’ abilities to make informed decisions as citizens of a culturally diverse democratic society and interdependent world.

2.5 The arts. Candidates know, understand, and use—as appropriate to their own understanding and skills—the content, functions, and achievements of the performing arts (dance, music, theatre) and the visual arts as primary media for communication, inquiry, and engagement among elementary students.

2.6 Health education. Candidates know, understand, and use the major concepts in the subject matter of health education to create opportunities for student development and practice of skills that contribute to good health.
2.7 Physical education. Candidates know, understand, and use—as appropriate to their own understanding and skills—human movement and physical activity as central elements to foster active, healthy lifestyles and enhanced quality of life for elementary students.

**Standard 3 Instruction**

3.1 Integrating and applying knowledge for instruction. Candidates plan and implement instruction based on knowledge of students, learning theory, connections across the curriculum, curricular goals, and community.

3.2 Adaptation to students from diverse populations. Candidates understand how elementary students differ in their development and approaches to learning, and create instructional opportunities that are adapted to students from diverse populations.

3.3 Development of critical thinking and problem solving. Candidates understand and use a variety of teaching strategies that encourage elementary students’ development of critical thinking and problem solving.

3.4 Active engagement in learning. Candidates use their knowledge and understanding of individual and group motivation and behavior among students at the K-6 level to foster active engagement in learning, self-motivation, and positive social interaction and to create supportive learning environments.

3.5 Communication to foster collaboration. Candidates use their knowledge and understanding of effective verbal, nonverbal, and media communication techniques to foster active inquiry, collaboration, and supportive interaction in the elementary classroom.

**Standard 4 Assessment for Instruction**
Candidates know, understand, and use formal and informal assessment strategies to plan, evaluate, and strengthen instruction that will promote continuous intellectual, social, emotional, and physical development of each elementary student.

**Standard 5 Professionalism**

5.1 Professional growth, reflection, and evaluation. Candidates are aware of and reflect on their practice in light of research on teaching, professional ethics, and resources available for professional learning; they continually evaluate the effects of their professional decisions and
actions on students, families, and other professionals in the learning community and actively seek out opportunities to grow professionally.

5.2 **Collaboration with families, colleagues, and community agencies.** Candidates know the importance of establishing and maintaining a positive collaborative relationship with families, school colleagues, and agencies in the larger community to promote the intellectual, social, emotional, physical growth, and well-being of children.
COLLABORATIVE

Standard 1 Learner Development and Individual Learning Differences
Beginning special education professionals understand how exceptionalities may interact with development and learning and use this knowledge to provide meaningful and challenging learning experiences for individuals with exceptionalities. Prior to program completion:

1.1 All candidates will:

1.1.1 Understand how language, culture, and family background influence the learning of individuals with exceptionalities.

1.1.2 Use understanding of development and individual differences to respond to the needs of individuals with exceptionalities.

Standard 2 Learning Environments
Beginning special education professionals create safe, inclusive, culturally responsive learning environments so that individuals with exceptionalities become active and effective learners and develop emotional well-being, positive social interactions, and self-determination. Prior to program completion:

2.1 All candidates will:

2.1.1 Collaborate with general educators and other colleagues to create safe, inclusive, culturally responsive learning environments to engage individuals with exceptionalities in meaningful learning activities and social interactions.

2.1.2 Use motivational and instructional interventions to teach individuals with exceptionalities how to adapt to different environments.

2.1.3 Know how to intervene safely and appropriately with individuals with exceptionalities who are in crisis.

2.3 Candidates in collaborative special education (K-6) will also:

2.3.1 Plan instruction for individual functional life skills, adaptive behavior, and enhanced social participation across environments.
2.3.2 Demonstrate appropriate body mechanics to promote student and teacher safety in transfer, lifting, positioning, and seating as well as use proper positioning techniques and equipment to promote participation in academic and social environments.

**Standard 3 Curricular Content Knowledge**

Beginning special education professionals use knowledge of general and specialized curricula to individualize learning for individuals with exceptionalities. Prior to program completion:

**3.1 All candidates will:**

3.1.1 Understand the central concepts, structures of the discipline, and tools of inquiry of the content areas they teach, and organize this knowledge, integrate cross-disciplinary skills, and develop meaningful learning progressions for individuals with exceptionalities. [“General curricula” means the academic content of the general curricula including math, reading, English language arts, science, social studies, and the arts. “Specialized curricula” means the content of specialized interventions or sets of interventions including, but not limited to academic, strategic, communicative, social, emotional, and independence curricula.]

3.1.2 Understand and use general and specialized content knowledge for teaching across curricular content areas to individualize learning for individuals with exceptionalities.

3.1.3 Modify general and specialized curricula to make them accessible to individuals with exceptionalities.

**Standard 4 Assessment**

Beginning special education professionals use multiple methods of assessment and data-resources in making educational decisions. Prior to program completion:

**4.1 All candidates will:**

4.1.1 Select and use technically sound formal and informal assessments that minimize bias.

4.1.2 Use knowledge of measurement principles and practices to interpret assessment results and guide educational decisions for individuals with exceptionalities.
4.1.3 Collaborate with colleagues and families to use multiple types of assessment information in making decisions about individuals with exceptionalities.

4.1.4 Engage individuals with exceptionalities to work toward quality learning and performance and provide feedback to guide them.

**Standard 5 Instructional Planning and Strategies**
Beginning special education professionals select, adapt, and use a repertoire of evidence-based instructional strategies to advance learning of individuals with exceptionalities. Prior to program completion:

5.1 **All candidates will:**

5.1.1 Consider an individual’s abilities, interests, learning environments, and cultural and linguistic factors in the selection, development, and adaptation of learning experiences for individuals with exceptionalities. (Instructional strategies include intervention used in academic and specialized curricula.)

5.1.2 Use technologies to support instructional assessment, planning, and delivery for individuals with exceptionalities.

5.1.3 Use augmentative and alternative communication systems and a variety of assistive technologies to support the communication and learning of individuals with exceptionalities.

5.1.4 Use strategies to enhance language development and communication skills of individuals with exceptionalities.

5.1.5 Develop and implement a variety of education and transition plans for individuals with exceptionalities across a wide range of settings and different learning experiences in collaboration with individuals, families, and teams.

5.1.6 Teach to mastery and promote generalization of learning.

5.1.7 Teach cross-disciplinary knowledge and skills such as critical thinking and problem solving to individuals with exceptionalities.
Standard 6 Professional Learning and Ethical Practice
Beginning special education professionals use foundational knowledge of the field and the Professional Ethical Principles and Professional Practice Standards of the Council for Exceptional Children to inform special education practice, to engage in lifelong learning, and to advance the profession. Prior to program completion:

6.1 All candidates will:

6.1.1 Use Professional Ethical Principles and Professional Practice Standards to guide their practice.

6.1.2 Understand how foundational knowledge and current issues influence professional practice.

6.1.3 Understand that diversity is a part of families, cultures, and schools, and that complex human issues can interact with the delivery of special education services.

6.1.4 Understand the significance of lifelong learning and participate in professional activities and learning communities.

6.1.5 Advance the profession by engaging in activities such as advocacy and mentoring.

6.1.6 Provide guidance and direction to paraeducators, tutors, and volunteers.

Standard 7 Collaboration
Beginning special education professionals collaborate with families, other educators, related service providers, individuals with exceptionalities, and personnel from community agencies in culturally responsive ways to address the needs of individuals with exceptionalities across a range of learning experiences. Prior to program completion:

7.1 All candidates will:

7.1.1 Use theory and elements of effective collaboration.

7.1.2 Serve as a collaborative resource to colleagues.
7.1.3 Use collaboration to promote the well-being of individuals with exceptionalities across a wide range of settings and collaborators.

**ENGLISH LANGUAGE ARTS**

**Standard 1: Candidates demonstrate knowledge of the English language arts subject matter content that specifically includes literature and multimedia texts as well as knowledge of the nature of adolescents as readers.**

1.1 Candidates are knowledgeable about texts—print and non-print texts, media texts, classic texts and contemporary texts, including young adult—that represent a range of world literatures, historical traditions, genres, and the experience of different genders, ethnicities, and social classes; they are able to use literary theories to interpret and critique a range of texts.

1.2 Candidates are knowledgeable about how adolescents read texts and make meaning through interaction with media environments.

**Standard 2: Candidates demonstrate knowledge of English language arts subject matter content that specifically includes language and writing as well as knowledge of adolescents as language users.**

2.1 Candidates can compose a range of formal and informal texts taking into consideration the interrelationships among form, audience, context, and purpose; candidates understand that writing is a recursive process; candidates can use contemporary technologies and/or digital media to compose multimodal discourse.

2.2 Candidates know the conventions of English language as they relate to various rhetorical situations (grammar, usage, and mechanics); they understand the concept of dialect and are familiar with relevant grammar systems (e.g., descriptive and prescriptive); they understand principles of language acquisition; they recognize the influence of English language history on English language arts content; and they understand the impact of language on society.

2.3 Candidates are knowledgeable about how adolescents compose make texts and meaning through interaction with media environments.

**Standard 3: Candidates plan instruction and design assessments for reading and the study of literature to promote learning for all students.**
3.1 Candidates use their knowledge of theory, research, and practice in English language arts to plan standards-based, coherent and relevant learning experiences utilizing a range of different texts—across genres, periods, forms, authors, cultures, and various forms of media—and instructional strategies that are motivating and accessible to all students, including English language learners, students with special needs, students from diverse language and learning backgrounds, those designated as high achieving, and those at risk of failure.

3.2 Candidates design a range of authentic assessments (e.g., formal and informal, formative and summative) of reading and literature that demonstrate an understanding of how learners develop and that address interpretive, critical, and evaluative abilities in reading, writing, speaking, listening, viewing, and presenting.

3.3 Candidates plan standards-based, coherent, and relevant learning experiences in reading that reflect knowledge of current theory and research about the teaching and learning of reading and that utilize individual and collaborative approaches and a variety of reading strategies.

3.4 Candidates design or knowledgeably select appropriate reading assessments that inform instruction by providing data about student interests, reading proficiencies, and reading processes.

3.5 Candidates plan instruction that incorporates knowledge of language—structure, history, and conventions—to facilitate students’ comprehension and interpretation of print and non-print texts.

3.6 Candidates plan instruction which, when appropriate, reflects curriculum integration and incorporates interdisciplinary teaching methods and materials.

**Standard 4:** Candidates plan instruction and design assessments for composing texts (i.e., oral, written, and visual) to promote learning for all students.

4.1 Candidates use their knowledge of theory, research, and practice in English language arts to plan standards-based, coherent and relevant composing experiences that utilize individual and collaborative approaches and contemporary technologies and reflect an understanding of writing processes and strategies in different genres for a variety of purposes and audiences.

4.2 Candidates design a range of assessments for students that promote their development as writers, are appropriate to the writing task, and are consistent with current research and theory. Candidates are able to respond to student writing in process and to finished texts in ways that engage students’ ideas and encourage their growth as writers over time.

4.3 Candidates design instruction related to the strategic use of language conventions (grammar, usage, and mechanics) in the context of students’ writing for different audiences, purposes, and modalities.
4.4 Candidates design instruction that incorporates students’ home and community languages to enable skillful control over their rhetorical choices and language practices for a variety of audiences and purposes.

**Standard 5:** Candidates plan, implement, assess, and reflect on research-based instruction that increases motivation and active student engagement, builds sustained learning of English language arts, and responds to diverse students’ context-based needs.

5.1 Candidates plan and implement instruction based on English language arts curricular requirements and standards, school and community contexts, and knowledge about students’ linguistic and cultural backgrounds.

5.2 Candidates use data about their students’ individual differences, identities, and funds of knowledge for literacy learning to create inclusive learning environments that contextualize curriculum and instruction and help students participate actively in their own learning in English language arts.

5.3 Candidates differentiate instruction based on students’ self-assessments and formal and informal assessments of learning in English language arts; candidates communicate with students about their performance in ways that actively involve them in their own learning.

5.4 Candidates select, create, and use a variety of instructional strategies and teaching resources, including contemporary technologies and digital media, consistent with what is currently known about student learning in English language arts.

**Standard 6:** Candidates demonstrate knowledge of how theories and research about social justice, diversity, equity, student identities, and schools as institutions can enhance students’ opportunities to learn in English language arts.

6.1 Candidates plan and implement English language arts and literacy instruction that promotes critical engagement with complex issues related to maintaining a diverse, inclusive and equitable society.

6.2 Candidates use knowledge of theories and research to plan instruction responsive to students’ local, national and international histories, individual identities (e.g., race, ethnicity, gender, age, appearance, ability, socioeconomic status, and community environment), and languages/dialects as they affect students’ opportunities to learn in English language arts.

**Standard 7:** Candidates are prepared to interact knowledgeably with student, families, and colleagues based on social needs and instructional roles, engage in leadership and/or collaborative roles in English language arts professional learning communities, and actively develop as professional educators.
7.1 Candidates model literate and ethical practices in English language arts teaching, and engage in/reflect on a variety of experience related to English language arts.

7.2 Candidates engage in and reflect on a variety of experiences related to English language arts that demonstrate understanding of and readiness for leadership, collaboration, ongoing professional development, and community engagement.
ENGLISH for SPEAKERS of OTHER LANGUAGES

Standard 1: Language.
Candidates know, understand, and use the major theories and research related to the structure and acquisition of language to help English language learners (ELLs) develop language and literacy and achieve in the content areas.

1.1 Language as a system.
Candidates demonstrate understanding of language as a system, including phonology, morphology, syntax, pragmatics and semantics, and support ELLs as they acquire English language and literacy in order to achieve in the content areas.

1.2 Language acquisition and development.
Candidates understand and apply theories and research of language acquisition and development to support their ELLs’ English language and literacy learning and content-area achievement.

Standard 2: Culture.
Candidates know, understand, and use major concepts, principles, theories and research related to the nature and role of culture and cultural groups to construct supportive learning environments for ELLs.

2.1 Culture as it affects student learning. Candidates know, understand and use major theories and research related to the nature and role of culture in their instruction.

2.2 Nature and role of culture.
Candidates design instruction that demonstrates understanding of how cultural groups and individual cultural identities affect language learning and school achievement.

Standard 3: Planning, Implementing, and Managing Instruction.
Candidates know, understand, and use evidence-based practices and strategies related to planning, implementing, and managing standards-based ESOL and content instruction. Candidates are knowledgeable about program models and skilled in teaching strategies for developing and integrating language skills. They integrate technology as well as choosing and adapting classroom resources appropriate for their ELLs.

3.1 Planning for standards-based ESOL and content instruction.

3.1.1 Candidates know, understand, and apply concepts, research, and best practices to plan classroom instruction in a supportive learning environment for ELLs. They plan for multilevel classrooms with learners from diverse backgrounds using standards-based ESL and content curriculum.
3.1.2 Candidates know, manage, and implement a variety of standards-based teaching strategies and techniques for developing and integrating English listening, speaking, reading, and writing. Candidates support ELLs’ access to the core curriculum by teaching language through academic content.

3.2 Using resources and technology effectively in ESOL and content instruction. Candidates are familiar with a wide range of standards-based materials, resources, and technologies, and choose, adapt, and use them in effective ESOL and content teaching.

**Standard 4: Assessment.**
Candidates demonstrate understanding of issues and concepts of assessment and use standards-based procedures with ELLs.

4.1 Issues of assessment for English language learners. Candidates demonstrate understanding of various assessment issues as they affect ELL’s, such as accountability, bias, special education testing, language proficiency, and accommodations in formal testing situations.

4.2 Language proficiency assessment. Candidates know and can use a variety of standards-based language proficiency instruments to show language growth and to inform their instruction. They demonstrate understanding of their uses for identification, placement, and reclassification of ELLs.

4.3 Classroom-based assessment for ESL. Candidates know and can use a variety of performance-based assessment tools and techniques to inform instruction in the classroom.

**Standard 5: Professionalism.** Candidates keep current with new instructional techniques, research results, advances in the ESOL field, and educational policy issues and demonstrate knowledge of the history of ESOL teaching. They use such information to reflect on and improve their instructional and assessment practices. Candidates work collaboratively with school staff and the community to improve the learning environment, provide support, and advocate for ELLs and their families.

5.1 ESOL research and history. Candidates demonstrate knowledge of history, research, educational public policy, and current practice in the field of ESOL teaching and apply this knowledge to inform teaching and learning.
5.2 Professional development, partnerships, and advocacy. Candidates take advantage of professional growth opportunities and demonstrate ability to build partnerships with colleagues and students’ families, serve as community resources, and advocate for ELLs.
FRENCH

Standard 1 Language Proficiency: Interpersonal, Interpretive, and Presentational
Candidates possess a high level of proficiency in the target language they will teach. They demonstrate the ability to:

1.1 Speak in the interpersonal mode of communication at a minimum level of “Advanced Low” or “Intermediate High” (for Arabic, Chinese, Japanese, and Korean) on the ACTFL Oral Proficiency Interview (OPI) according to the target language being taught.

1.2 Interpret oral, printed, and video texts by demonstrating both literal and figurative or symbolic comprehension.

1.3 Present oral and written information to audiences of listeners or readers, using language at a minimum level of “Advanced Low” or “Intermediate High” according to the target language being taught.

Standard 2 Cultures, Linguistics, Literature, and Concepts from Other Disciplines
Candidates demonstrate understanding of the multiple content areas that comprise the field of foreign language studies. They:

2.1 Demonstrate target cultural understandings and compare cultures through perspectives, products, and practices of those cultures.

2.2 Demonstrate understanding of linguistics and the changing nature of language, and compare language systems.

2.3 Demonstrate understanding of texts on literary and cultural themes as well as interdisciplinary topics.

Standard 3 Language Acquisition Theories and Knowledge of Students and Their Needs
Candidates:

3.1 Demonstrate an understanding of key principles of language acquisition and create linguistically and culturally rich learning environments.
3.2 Demonstrate an understanding of child development to create a supportive learning environment for each student.

**Standard 4 Integration of Standards in Planning and Instruction**

Candidates:

4.1 Demonstrate an understanding of the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards and use them as the basis for instructional planning.

4.2 Integrate the goal areas of the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards in their classroom practice.

4.3 Use the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards to select and integrate authentic texts, use technology, and adapt and create instructional materials for use in communication.

**Standard 5 Assessment of Languages and Cultures – Impact on Student Learning**

Candidates:

5.1 Design and use ongoing performance assessments using a variety of assessment models for all learners, including diverse students.

5.2 Reflect on and analyze the results of student assessments, adjust instruction accordingly, and use data to inform and strengthen subsequent instruction.

5.3 Interpret and report the results of student performances to all stakeholders in the community, with particular emphasis on building student responsibility for their own learning.

**Standard 6 Professional Development, Advocacy, and Ethics**

Candidates:

6.1 Engage in ongoing professional development opportunities that strengthen their own linguistic, cultural and pedagogical competence and promote reflection on practice.

6.2 Articulate the role and value of languages and cultures in preparing all students to interact in the global community of the 21st century through collaboration and advocacy with all stakeholders.
6.3 Use inquiry and reflection to understand and explain the opportunities and responsibilities inherent in being a professional language educator and demonstrate a commitment to equitable and ethical interactions with all students, colleagues and other stakeholders.
GENERAL SCIENCE

ALL SCIENCE (AS) Programs

Standard 1 Content Knowledge
Effective teachers of science understand and articulate the knowledge and practices of contemporary science. They interrelate and interpret important concepts, ideas, and applications in their fields of certification. Candidates:

AS 1.1 Understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure/certification and supporting fields as recommended by the National Science Teachers Association.

AS 1.2 Understand the central concepts of the supporting disciplines and the supporting role of science-specific technology.

ALL SCIENCES (AS) Programs

Standard 2 Content Pedagogy
Effective teachers of science understand how students learn and develop scientific knowledge. Preservice teachers use scientific inquiry to develop this knowledge for all students.

AS 2.1 Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.

AS 2.2 Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.

AS 2.3 Design instruction and assessment strategies that confront and address naïve concepts/preconceptions.

ALL SCIENCES (AS) Programs

Standard 3 Learning Environments
Effective teachers of science are able to plan for engaging all students in science learning by setting appropriate goals that are consistent with knowledge of how students learn science and are aligned with state and national standards. The plans reflect the nature and social context of science, inquiry, and appropriate safety considerations. Candidates design and select learning activities, instructional settings, and resources—including science-specific technology, to achieve those goals; and they plan fair and equitable assessment strategies to evaluate whether the learning goals are met. Candidates:

AS 3.1 Use a variety of strategies that demonstrate the candidates’ knowledge and understanding of how to select the appropriate teaching and learning activities – including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.

AS 3.2 Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.

AS 3.3 Plan fair and equitable assessment strategies to analyze student learning and to evaluate if the learning goals are met. Assessment strategies are designed to continuously evaluate preconceptions and ideas that students hold and the understandings that students have formulated.

AS 3.4 Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure/certification area.

ALL SCIENCES (AS) Programs
Standard 4 Safety
Effective teachers of science can, in a 6-12 classroom, demonstrate and maintain chemical safety, safety procedures, and the ethical treatment of living organisms to be used in the 6-12 science classroom as appropriate to their area of certification.

AS 4.1 Design and demonstrate activities in a 6-12 classroom that demonstrate an ability to implement emergency procedures and the maintenance of safety equipment, policies and procedures that comply with established state and/or national guidelines. Candidates ensure safe science activities appropriate for the abilities of all students.
AS 4.2 Design and demonstrate activities in a 6-12 classroom that demonstrate ethical decision-making with respect to the treatment of all living organisms in and out of the classroom, emphasizing safe, humane, and ethical treatment of animals and complying with the legal restrictions on the collection, keeping, and use of living organisms.

**ALL SCIENCES (AS) Programs: Standard 5 Impact on Student Learning**

Effective teachers of science provide evidence to show that 6-12 students’ understanding of major science concepts, principles, theories, and laws have changed as a result of instruction by the candidate and that student knowledge is at a level of understanding beyond memorization. Candidates provide evidence for the diversity of students they teach.

AS 5.1 Collect, organize, analyze, and reflect on diagnostic, formative and summative evidence of a change in mental functioning demonstrating that scientific knowledge is gained and/or corrected.

AS 5.2 Provide data to show that 6-12 students are able to distinguish science from non-science, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science.

AS 5.3 Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

**ALL SCIENCES (AS) Programs: Standard 6 Professional Knowledge and Skills**

Effective teachers of science strive continuously to improve their knowledge and understanding of the ever-changing knowledge base of both content and science pedagogy, including approaches for addressing inequities and inclusion for all students in science. They identify with and conduct themselves as part of the science education community. Candidates:

AS 6.1 Engage in professional development opportunities in their content field such as talks, symposiums, research opportunities, or projects within their community.

AS 6.2 Engage in professional development opportunities such as conferences, research opportunities, or projects within their community.

**General Science (GS) Standard 1 Content Knowledge**

**GS 1.1 Competency Requirements for All Science Teachers**
Candidates in general science demonstrate knowledge of:

**GS1.1.1** Multiple ways we organize our perceptions of the world and how systems organize the studies and knowledge of science.

**GS1.1.2** Nature of scientific evidence and the use of models for explanation.

**GS1.1.3** Measurement as a way of knowing and organizing observations of constancy and change.

**GS1.1.4** Development of natural systems and factors that result in change over time or equilibrium.

**GS1.1.5** Interrelationships of form, function, and behaviors in living and nonliving systems.

**GS 1.2 Core Concepts in General Science**
Candidates in general science demonstrate knowledge of:

**GS1.2.1** Life processes in living systems including organization of matter and energy.

**GS1.2.2** Similarities and differences among animals, plants, fungi, microorganisms, and viruses.

**GS1.2.3** Principles and practices of biological classification.

**GS1.2.4** Theory and principles of biological changes over time.

**GS1.2.5** Ecological systems including the interrelationships and dependencies of organisms with each other and their environments.

**GS1.2.6** Population dynamics and the impact of population on its environment.

**GS1.2.7** General concepts of genetics and heredity.

**GS1.2.8** Organizations and functions of cells and multi-cellular systems.
GS1.2.9 Behavior of organisms and their relationships to social systems.

GS1.2.10 Regulation of biological systems including homeostatic mechanisms.

GS1.2.11 Fundamental processes of modeling and investigating in the biological sciences.

GS1.2.12 Applications of General Science in environmental quality and in personal and community health.

**GS1.3 Core Concepts in Chemistry**
Candidates in general science demonstrate knowledge of:

GS1.3.1 Fundamental structures of atoms and molecules.

GS1.3.2 Basic principles of ionic, covalent, and metallic bonding.

GS1.3.3 Physical and chemical properties and classification of elements including periodicity.

GS1.3.4 Chemical kinetics and thermodynamics.

GS1.3.5 Principles of electrochemistry.

GS1.3.6 Mole concept, stoichiometry, and laws of composition.

GS1.3.7 Transition elements and coordination compounds.

GS1.3.8 Acids and bases, oxidation-reduction chemistry, and solutions.

GS1.3.9 Fundamental biochemistry.

GS1.3.10 Functional and polyfunctional group chemistry.
GS1.3.11 Environmental and atmospheric chemistry.

GS1.3.13 Applications of chemistry in personal and community health and environmental quality.

**GS1.4 Core Competencies in Earth and Space Sciences**
Candidates in general science demonstrate knowledge of:

GS1.4.1 Characteristics of land, atmosphere, and ocean systems on Earth.

GS1.4.2 Properties, measurement, and classification of Earth materials.

GS1.4.3 Changes in the Earth including land formation and erosion.

GS1.4.4 Geochemical cycles including biotic and abiotic systems.

GS1.4.5 Energy flow and transformation in Earth systems.

GS1.4.6 Hydrological features of the Earth.

GS1.4.7 Patterns and changes in the atmosphere, weather, and climate.

GS1.4.8 Origin, change over time, and planetary behaviors of Earth.

GS1.4.9 Origin, change over time, and properties of the universe.

GS1.4.10 Fundamental processes of investigation in the Earth and spaces sciences.

GS1.4.11 Sources and limits of natural resources.

GS1.4.12 Application of Earth and space sciences to environmental quality and to personal and community health and welfare.
**GS1.5 Core Concepts in Physics**
Candidates in general science demonstrate knowledge of:

GS1.5.1 Energy, work, and power.

GS1.5.2 Motion, major forces, and momentum.

GS1.5.3 Newtonian principles and laws with engineering applications.

GS1.5.4 Conservation of mass, momentum, energy, and charge.

GS1.5.5 Physical properties of matter.

GS1.5.6 Kinetic-molecular motion and atomic models.

GS1.5.7 Radioactivity, nuclear reactors, fission, and fusion.

GS1.5.8 Wave theory, sound, light, the electromagnetic spectrum, and optics.

GS1.5.9 Electricity and magnetism.

GS1.5.10 Fundamental processes of investigating in physics.

GS1.5.11 Applications of physics in environmental quality and to personal and community health.

**Advanced Competencies for General Science OR Chemistry OR Physics**

**GS1.6.1 Advanced Competencies for General Science**
Knowledge of:

GS1.6.1.1 Bioenergetics including major biochemical pathways.
GS1.6.1.2 Biochemical interactions of organisms and their environments.

GS1.6.1.3 Molecular genetics and heredity and mechanisms of genetic modification.

GS1.6.1.4 Molecular basis for evolutionary theory and classification.

GS1.6.1.5 Causes, characteristics, and avoidance of viral, bacterial, and parasitic diseases.

GS1.6.1.6 Issues related to living systems such as genetic modification, uses of biotechnology, cloning, and pollution from farming.

GS1.6.1.7 Historical development and perspectives in General Science including contributions of significant figures and underrepresented groups, and the development theories in General Science.

GS1.6.1.8 How to design, conduct, and report research in General Science.

GS1.6.1.9 Applications of General Science and biotechnology in society, business, industry, and health fields.

**GS1.7 Supporting Competencies for General Science**

GS1.7.1 Mathematics at least to the pre-calculus level.

GS1.7.2 Probability and statistics.
GENERAL SOCIAL SCIENCE

All Social Studies

Standard 1 Interdisciplinary approach
Prior to program completion, prospective teachers of any teaching field in social studies shall demonstrate:

SS 1.1 Knowledge of:

SS 1.1.1 Culture as an integrated whole that governs the functions and interaction of language, literature, arts, traditions, beliefs, values, and behavior patterns and how differing cultural assumptions may contribute to or pose obstacles to cross-cultural understanding.

SS 1.1.2 How past and present technological and scientific developments have impacted the physical world and human society, as well as how societal attitudes have influenced scientific and technological endeavors.

SS 1.1.3 The causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues.

SS1.2 Ability to:

SS1.2.1 Guide students in incorporating pertinent social studies disciplinary knowledge to address pivotal events and persistent societal issues from an interdisciplinary perspective.

SS1.2.2 Enable students to become literate, analytical thinkers capable of making informed decisions about the world and its people while participating responsibly in society at local, state, national, and international levels.

Standard 2

Pedagogy for social studies
Prior to program completion, prospective teachers of any teaching field in social studies shall demonstrate ability to:

SS2.1 Analyze the purpose of social studies, select content pertinent to those purposes, and assess student learning in terms of social studies goals.
SS2.2 Select, integrate, and translate the content and methods of investigation of history and the social studies disciplines for use in social studies instruction.

SS2.3 Use a variety of approaches to instruction that are pertinent to the nature of social studies content and goals and to use them in diverse settings and with students with diverse backgrounds, interests, and abilities.

**General Social Studies (GSS)**

**Standard 1 Economics**

Prospective teachers of general social studies will demonstrate the knowledge and skills to prepare their students to:

GSS1.1 Understand the free enterprise system, the American economy, and differing economic views, including the roles of entrepreneurs and the government.

GSS1.2 Explain the law of supply and demand in a market economy.

GSS1.3 Understand the international market system.

GSS1.4 Identify economic problems, including unemployment, inflation, and national debt.

GSS1.5 Understand concepts of money, personal finance, and opportunity costs.

GSS1.6 Understand roles of consumers and producers in the market economy of the United States.

GSS1.7 Apply financial literacy principles, including money management skills.

GSS1.8 Explain costs and benefits of government intervention on the world economy.

**Standard 2 Geography**

Prospective teachers of general social studies will demonstrate the knowledge and skills to prepare their students to:
GSS2.1 Describe the world in spatial terms using maps and other geographic representations, tools, and technologies.

GSS2.2 Explain how human systems develop in response to physical environmental conditions and understand the relationship between physical geography and human history.

GSS2.3 Determine how regions are used to organize and analyze areas of Earth’s surface.

GSS2.4 Compare geographic patterns in the environment that result from processes of Earth’s physical systems.

GSS2.5 Explain how cultural features, traits, and diffusion help define regions.

**Standard 3 History**
Prospective teachers of general social studies will demonstrate the knowledge and skills to prepare their students to:

GSS3.1 Construct a personal connection to historical events at home and abroad.

GSS3.2 Think critically and chronologically regarding major events occurring in the United States and throughout the world;

GSS3.3 Critique a variety of historical documents;

GSS3.4 Engage in historical analysis and interpretation.

GSS3.5 Conduct historical research.

GSS3.6 Evaluate intricate connections among the past, present, and future.

GSS3.7 Engage in decision making using historical knowledge and analysis.

**Standard 4 Civics and Government (Political Science)**
Prospective teachers of general social studies will demonstrate the knowledge and skills to prepare their students to:
GSS4.1 Define government and understand its historical foundations.

GSS4.2 Explain interrelationships of local, state, and federal governments.

GSS4.3 Understand basic values and principles of the American republic.

GSS4.4 Comprehend the relationship of the United States to the rest of the world.

GSS4.5 Identify rights and responsibilities of citizenship, including the practice of responsible citizenship.
GEOGRAPHY

All Social Studies

Standard 1 Interdisciplinary approach
Prior to program completion, prospective teachers of any teaching field in social studies shall demonstrate:

SS1.1 Knowledge of:

SS1.1.1 Culture as an integrated whole that governs the functions and interaction of language, literature, arts, traditions, beliefs, values, and behavior patterns and how differing cultural assumptions may contribute to or pose obstacles to cross-cultural understanding.

SS1.1.2 How past and present technological and scientific developments have impacted the physical world and human society, as well as how societal attitudes have influenced scientific and technological endeavors.

SS1.1.3 The causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues.

SS1.2 Ability to:

SS1.2.1 Guide students in incorporating pertinent social studies disciplinary knowledge to address pivotal events and persistent societal issues from an interdisciplinary perspective.

SS1.2.2 Enable students to become literate, analytical thinkers capable of making informed decisions about the world and its people while participating responsibly in society at local, state, national, and international levels.

Standard 2

Pedagogy for social studies
Prior to program completion, prospective teachers of any teaching field in social studies shall demonstrate ability to:

SS2.1 Analyze the purpose of social studies, select content pertinent to those purposes, and assess student learning in terms of social studies goals.
SS2.2 Select, integrate, and translate the content and methods of investigation of history and the social studies disciplines for use in social studies instruction.

SS2.3 Use a variety of approaches to instruction that are pertinent to the nature of social studies content and goals and to use them in diverse settings and with students with diverse backgrounds, interests, and abilities.

**Geography**

**Standard 1 Geography Knowledge**

G1.1 The physical and human characteristics of places.

G1.2 The concept of regions as a means to interpret Earth’s complexity.

G1.3 How culture and experience influence people’s perceptions of places and regions.

G1.4 The physical processes that shape Earth’s surface.

G1.5 The characteristics and spatial distribution of ecosystems on Earth’s surface.

G1.6 The characteristics, distribution, and migration of human populations on Earth’s surface.

G1.7 The characteristics, distribution, and complexity of Earth’s cultural mosaics.

G1.8 The patterns and networks of economic interdependence on Earth’s surface.

G1.9 How human actions modify the physical environment.

G1.10 How physical systems affect human systems.

**Standard 2 Geography Skills**
G2.1 Use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective.

G2.2 Use mental maps to organize information about people, places, and environments in a spatial context.

G2.3 Analyze the spatial information about people, places, and environments on Earth’s surface.

G2.4 Describe the processes, patterns, and functions of human settlement.

G2.5 Examine how the forces of cooperation and conflict among people influence the division and control of Earth’s surface.

G2.6 Examine the changes that occur in the meaning, use, distribution, and importance of resources.

G2.7 Interpret the past and present and to plan for the future.

**Standard 3**

**Pedagogy for Geography**

Prospective teachers of geography will prepare their student to:

G3.1 Ask questions and to acquire, organize, and analyze geographic information so they can answer geographic questions as they engage in the study of substantive geographic content.

G3.2 Describe the world in spatial terms using maps and other geographic representations, tools, and technologies.

G3.3 Explain how human systems develop in response to physical environmental conditions and understand the relationship between physical geography and human history.

G3.4 Determine how regions are used to organize and analyze areas of Earth’s surface.
G3.5 Compare geographic patterns in the environment that result from processes of Earth’s physical systems.

G3.6 Explain how cultural features, traits, and diffusion help define regions.

GERMAN

**Standard 1 Language Proficiency: Interpersonal, Interpretive, and Presentational**
Candidates possess a high level of proficiency in the target language they will teach. They demonstrate the ability to:

1.1 Speak in the interpersonal mode of communication at a minimum level of “Advanced Low” or “Intermediate High” (for Arabic, Chinese, Japanese, and Korean) on the ACTFL Oral Proficiency Interview (OPI) according to the target language being taught.

1.2 Interpret oral, printed, and video texts by demonstrating both literal and figurative or symbolic comprehension.

1.3 Present oral and written information to audiences of listeners or readers, using language at a minimum level of “Advanced Low” or “Intermediate High” according to the target language being taught.

**Standard 2 Cultures, Linguistics, Literature, and Concepts from Other Disciplines**
Candidates demonstrate understanding of the multiple content areas that comprise the field of foreign language studies. They:

2.1 Demonstrate target cultural understandings and compare cultures through perspectives, products, and practices of those cultures.

2.2 Demonstrate understanding of linguistics and the changing nature of language, and compare language systems.

2.3 Demonstrate understanding of texts on literary and cultural themes as well as interdisciplinary topics.

**Standard 3 Language Acquisition Theories and Knowledge of Students and Their Needs**
Candidates:

3.1 Demonstrate an understanding of key principles of language acquisition and create linguistically and culturally rich learning environments.
3.2 Demonstrate an understanding of child development to create a supportive learning environment for each student.

**Standard 4 Integration of Standards in Planning and Instruction**

Candidates:

4.1 Demonstrate an understanding of the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards and use them as the basis for instructional planning.

4.2 Integrate the goal areas of the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards in their classroom practice.

4.3 Use the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards to select and integrate authentic texts, use technology, and adapt and create instructional materials for use in communication.

**Standard 5 Assessment of Languages and Cultures – Impact on Student Learning**

Candidates:

5.1 Design and use ongoing performance assessments using a variety of assessment models for all learners, including diverse students.

5.2 Reflect on and analyze the results of student assessments, adjust instruction accordingly, and use data to inform and strengthen subsequent instruction.

5.3 Interpret and report the results of student performances to all stakeholders in the community, with particular emphasis on building student responsibility for their own learning.

**Standard 6 Professional Development, Advocacy, and Ethics**

Candidates:

6.1 Engage in ongoing professional development opportunities that strengthen their own linguistic, cultural and pedagogical competence and promote reflection on practice.

6.2 Articulate the role and value of languages and cultures in preparing all students to interact in the global community of the 21st century through collaboration and advocacy with all stakeholders.

6.3 Use inquiry and reflection to understand and explain the opportunities and responsibilities inherent in being a professional language educator and demonstrate a commitment to equitable and ethical interactions with all students, colleagues, and other stakeholders.
HISTORY

All Social Studies

Standard 1 Interdisciplinary approach

Prior to program completion, prospective teachers of any teaching field in social studies shall demonstrate:

SS1.1 Knowledge of:

SS1.1.1 Culture as an integrated whole that governs the functions and interaction of language, literature, arts, traditions, beliefs, values, and behavior patterns and how differing cultural assumptions may contribute to or pose obstacles to cross-cultural understanding.

SS1.1.2 How past and present technological and scientific developments have impacted the physical world and human society, as well as how societal attitudes have influenced scientific and technological endeavors.

SS1.1.3 The causes, consequences, and possible solutions to persistent, contemporary, and emerging global issues.

SS1.2 Ability to:

SS1.2.1 Guide students in incorporating pertinent social studies disciplinary knowledge to address pivotal events and persistent societal issues from an interdisciplinary perspective.

SS1.2.2 Enable students to become literate, analytical thinkers capable of making informed decisions about the world and its people while participating responsibly in society at local, state, national, and international levels.

Standard 2

Pedagogy for social studies

Prior to program completion, prospective teachers of any teaching field in social studies shall demonstrate ability to:

SS2.1 Analyze the purpose of social studies, select content pertinent to those purposes, and assess student learning in terms of social studies goals.
SS2.2 Select, integrate, and translate the content and methods of investigation of history and the social studies disciplines for use in social studies instruction.

SS2.3 Use a variety of approaches to instruction that are pertinent to the nature of social studies content and goals and to use them in diverse settings and with students with diverse backgrounds, interests, and abilities.

**History (H)**

**Standard 1 Knowledge of:**

H1.1 How historians study history.

H1.2 The history and values of diverse civilizations throughout the world, including those of the West, and in comparisons of patterns of continuity and change in different parts of the world.

H1.3 The historical content in United States history as a way to ask large and searching questions that compare patterns of continuity and change in the history and values of the many people who have contributed to the development of the continent of North America.

H1.4 Historical understanding through the avenues of social, political, economic, and cultural history and the history of science and technology.

**Standard 2 Ability to:**

H2.1 Utilize chronological thinking to distinguish between past, present, and future time.

H2.2 Place historical narratives in the proper chronological framework.

H2.3 Interpret data presented in time lines.

H2.4 Compare alternative models for periodization.

H2.5 Reconstruct the literal meaning of a historical passage.

H2.6 Identify the central questions addressed in a historical narrative.
H2.7 Draw upon data in historical maps, charts, and graphic organizers.

H2.8 Draw upon visual, literary, and/or musical sources.

H2.9 Use of historical analysis and interpretation, such as compare and contrast, differentiate between historical facts and interpretations, consider multiple perspectives, analyze cause and effect relationships, compare competing historical narratives, recognize the tentative nature of historical interpretations, and hypothesize the influence of the past.

H2.10 Use historical research capabilities to formulate historical questions, obtain historical data, question historical data, identify the gaps in available records, place records in context, and construct sound historical interpretations.

H2.11 Identify issues and problems in the past, recognize factors contributing to such problems, identify and analyze alternative courses of action, formulate a position or course of action, and evaluate the implementation of that decision.

H2.12 Prepare their students to:

H2.12.1 Construct a personal connection to historical events at home and abroad.

H2.12.2 Think critically and chronologically regarding major events occurring in the United States and throughout the world;

H2.12.3 Critique a variety of historical documents;

H2.12.4 Engage in historical analysis and interpretation.

H2.12.5 Conduct historical research.

H2.12.6 Evaluate intricate connections among the past, present, and future.

H2.12.7 Engage in decision making using historical knowledge and analysis.
MATHEMATICS

Standard 1 Content Knowledge

Candidates demonstrate and apply knowledge of major mathematics concepts, algorithms, procedures, applications in varied contexts, and connections within and among mathematical domains.

1.1 Number and Quantity

Candidates know the following topics related to number and quantity with the content understanding and mathematical practices supported by appropriate technology and varied representational tools, including concrete models:

1.1.1 Structure, properties, relationships, operations, and representations including standard and non-standard algorithms, of numbers and number systems including integer, rational, irrational, real, and complex numbers.

1.1.2 Fundamental ideas of number theory (divisors, factors and factorization, primes, composite numbers, greatest common factor, least common multiple, and modular arithmetic).

1.1.3 Quantitative reasoning and relationships that include ratio, rate, and proportion and use of units in problem situations.

1.1.4 Vector and matrix operations, modeling, and applications.

1.1.5 Historical development perspectives of number, number systems, and quantity including contributions of significant figures and diverse cultures.

1.2 Algebra

Candidates know the following topics related to algebra:

1.2.1 Algebraic notation, symbols, expressions, equations, inequalities, and proportional relationships, and their use in describing, interpreting, modeling, generalizing, and justifying relationships and operations.

1.2.2 Function classes including polynomial, exponential and logarithmic, absolute value, rational, and trigonometric, including those with discrete domains (e.g., sequences), and how the choices of parameters determine particular cases and model specific situations.

1.2.3 Functional representations (tables, graphs, equations, descriptions, recursive definitions, and finite differences), characteristics (e.g., zeros, intervals of increase or decrease, extreme, average rates of change, domain and range, and end behavior), and notations as a means to describe, reason, interpret, and analyze relationships and to build new functions.
1.2.4 Patterns of change in linear, quadratic, polynomial, and exponential functions and in proportional and inversely proportional relationships and types of real-world relationships these functions can model.

1.2.5 Linear algebra including vectors, matrices, and transformations.

1.2.6 Abstract algebra, including groups, rings, and fields, and the relationship between these structures and formal structures for number systems and numerical and symbolic calculations.

1.2.7 Historical development and perspective of algebra including contributions of significant figures and diverse culture.

1.3 Geometry and Trigonometry

Candidates know the following topics related to geometry and trigonometry:

1.3.1 Core concepts and principles of Euclidean geometry in two and three dimensions and two-dimensional non-Euclidean geometries.

1.3.2 Transformations including dilations, translations, rotations, reflections; guide reflections; compositions of transformations; and the expression of symmetry in terms of transformations.

1.3.3 Congruence, similarity and scaling, and their development and expression in terms of transformations;

1.3.4 Right triangles and trigonometry.

1.3.5 Application of periodic phenomena and trigonometric identities.

1.3.6 Identification, classification into categories, visualization, and representation of two- and three-dimensional objects (triangles, quadrilaterals, regular polygons, prisms, pyramids, cones, cylinders, and spheres).

1.3.7 Formula rationale and derivation (perimeter, area, surface area, and volume) of two- and three-dimensional objects (triangles, quadrilaterals, regular polygons, rectangular prisms, pyramids, cones, cylinders, and spheres), with attention to units, unit comparison, and the iteration, additivity, and invariance related to measurements.
1.3.8 Geometric constructions, axiomatic reasoning, and proof.

1.3.9 Analytic and coordinate geometry including algebraic proofs, (e.g., the Pythagorean Theorem and its converse) and equations of lines and planes, and expressing geometric properties of conic sections with equations.

1.3.10 Historical development and perspectives of geometry and trigonometry including contributions of significant figures and diverse cultures.

1.4 Statistics and Probability
Candidates know the following topics related to statistics and probability:

1.4.1 Statistical variability and its sources and role of randomness in statistical inference.

1.4.2 Creation and implementation of surveys and investigations using sampling methods and statistical designs, statistical inference (estimation of population parameters and hypotheses testing), justification of conclusions, and generalization of results.

1.4.3 Univariate and bivariate data distributions for categorical data and for discrete and continuous random variables, including representations, construction and interpretation of graphical displays (e.g., box plots, histograms, cumulative frequency plots, scatter plots), summary measures, and comparisons of distributions.

1.4.4 Empirical and theoretical probability (discrete, continuous, and conditional) for both simple and compound events.

1.4.5 Random (chance) phenomena, simulations, and probability distributions and their application as models of real phenomena and to decision making.

1.4.6 Historical development and perspectives of statistics and probability including contributions of significant figures and diverse cultures.

1.5 Calculus
Candidates know the following topics related to calculus:
1.5.1 Limits, continuity, rates of change, the Fundamental Theorem of Calculus, and the meanings and techniques of differentiation and integration.

1.5.2 Parametric, polar, and vector functions.

1.5.3 Sequences and series.

1.5.4 Multivariate functions.

1.5.5 Applications of function, geometry, and trigonometry concepts to solve problems involving calculus.

1.5.6 Historical development and perspectives of calculus including contributions.

1.6 Discrete Mathematics
Candidates know the following topics related to discrete mathematics:

1.6.1 Discrete structures including sets, relations, functions, graphs, trees, and networks.

1.6.2 Enumeration including permutations, combinations, iteration, recursion, and finite differences.

1.6.3 Propositional and predicate logic.

1.6.4 Applications of discrete structures such as modeling and solving linear programming problems and designing data structures.

1.6.5 Historical development and perspectives of discrete mathematics including contributions of significant figures and diverse cultures.

Standard 2 Mathematics Practices
Candidates solve problems, represent mathematical ideas, reason, prove, use mathematical models, attend to precision, identify elements of structure, generalize, engage in mathematical communication, and make connections as essential mathematical practices. They understand that these practices intersect with mathematical content and that understanding relies on the
ability to demonstrate these practices within and among mathematical domains and in their teaching. Candidates:

2.1 Use problem solving to develop conceptual understanding, make sense of a wide variety of problems and persevere in solving them, apply and adapt a variety of strategies in solving problems confronted within the field of mathematics and other contexts, and formulate and test conjectures in order to frame generalizations.

2.2 Reason abstractly, reflectively, and quantitatively with attention to units, constructing viable arguments and proofs, and critiquing the reasoning of others; represent and model generalizations using mathematics; recognize structure and express regularity in patterns of mathematical reasoning; use multiple representations to model and describe mathematics; and utilize appropriate mathematical vocabulary and symbols to communicate mathematical ideas to others.

2.3 Formulate, represent, analyze, and interpret mathematical models derived from real-world contexts or mathematical problems.

2.4 Organize mathematical thinking and use the language of mathematics to express ideas precisely, both orally and in writing to multiple audiences.

2.5 Demonstrate the interconnectedness of mathematical ideas and how they build on one another and recognize and apply mathematical connections among mathematical ideas and across various content areas and real-world contexts.

2.6 Model how the development of mathematical understanding within and among mathematical domains intersects with the mathematical practices of problem solving, reasoning, communication, connecting, and representing.

Standard 3 Content Pedagogy
Candidates apply knowledge of curriculum standards for mathematics and their relationship to student learning within and across mathematical domains. They incorporate research-based mathematical experiences and include multiple instructional strategies and mathematics-specific technological tools in their teaching to develop all students’ mathematical understanding and proficiency. They provide students with opportunities to do mathematics – talking about it and connecting it to both theoretical and real-world contexts. They plan, select, implement, interpret, and use formative and summative assessments for monitoring student learning, measuring student mathematical understanding, and informing practice. Candidates:
3.1 Apply knowledge of curriculum standards for secondary mathematics and their relationship to student learning within and across mathematical domains.

3.2 Analyze and consider research in planning for and leading students in rich mathematical learning experiences.

3.3 Plan lessons and units that incorporate a variety of strategies, differentiated instruction for diverse populations, and mathematics-specific and instructional technologies in building all students’ conceptual understanding and procedural proficiency.

3.4 Provide students with opportunities to communicate about mathematics and make connections among mathematics, other content areas, everyday life, and the workplace.

3.5 Implement techniques related to student engagement and communication including selecting high quality tasks, guiding mathematical discussions, identifying key mathematical ideas, identifying and addressing student misconceptions, and employing a range of questioning strategies.

3.6 Plan, select, implement, interpret, and use formative and summative assessments to inform instruction by reflecting on mathematical proficiencies essential for all students.

3.7 Monitor students’ progress, make instructional decisions, and measure students’ mathematical understanding and ability using formative and summative assessments.

**Standard 4 Mathematical Learning Environment**

Candidates exhibit knowledge of adolescent learning, development, and behavior. They use this knowledge to plan and create sequential learning opportunities grounded in mathematics education research where students are actively engaged in the mathematics they are learning and building from prior knowledge and skills. They demonstrate a positive disposition toward mathematical practices and learning, include culturally relevant perspectives in teaching, and demonstrate equitable and ethical treatment of and high expectations for all students. They use instructional tools such as manipulatives, digital tools, and virtual resources to enhance learning while recognizing the possible limitations of such tools. Candidates:

4.1 Exhibit knowledge of adolescent learning, development, and behavior and demonstrate a positive disposition toward mathematical processes and learning.
4.2 Plan and create developmentally appropriate, sequential, and challenging learning opportunities grounded in mathematics education research in which students are actively engaged in building new knowledge from prior knowledge and experiences.

4.3 Incorporate knowledge of individual differences and the cultural and language diversity that exists within classrooms and include culturally relevant perspectives as a means to motivate and engage students.

4.4 Demonstrate equitable and ethical treatment of and high expectations for all students.

4.5 Apply mathematical content and pedagogical knowledge to select and use instructional tools such as manipulatives and physical models, drawings, virtual environments, spreadsheets, presentation tools, and mathematics-specific technologies (e.g., graphing tools, interactive geometry software, computer algebra systems, and statistical packages); and make sound decisions about when such tools enhance teaching and learning, recognizing both the insights to be gained and possible limitations of such tools.

**Standard 5 Impact on Student Learning**
Candidates provide evidence demonstrating that as a result of their instruction, secondary students’ conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and application of major mathematics concepts in varied contexts have increased. They support the continual development of a productive disposition toward mathematics. They show that new student mathematical knowledge has been created as a consequence of their ability to engage students in mathematical experiences that are developmentally appropriate, require active engagement, and include mathematics-specific technology in building new knowledge. Candidates:

5.1 Verify that secondary students demonstrate conceptual understanding; procedural fluency; the ability to formulate, represent, and solve problems; logical reasoning and continuous reflection on that reasoning; productive disposition toward mathematics and the application of mathematics in a variety of contexts within major mathematical domains.

5.2 Engage students in developmentally appropriate mathematical activities and investigations that require active engagement and include mathematics-specific technology in building new knowledge.
5.3 Collect, organize, analyze, and reflect on diagnostic, formative, and summative assessment evidence and determine the extent to which students’ mathematical proficiencies have increased as a result of their instruction.

**Standard 6 Professional Knowledge and Skills**
Candidates are lifelong learners and recognize that learning is often collaborative. They participate in professional development experiences specific to mathematics and mathematics education, draw upon mathematics education research to inform practice, continuously reflect on their practice, and utilize resources from professional mathematics organizations. Candidates:

6.1 Take an active role in their professional growth by participating in professional development experiences that directly relate to the learning and teaching of mathematics.

6.2 Engage in continuous and collaborative learning that draws upon research in mathematics education to inform practice; enhance learning opportunities for all students’ mathematical knowledge development; involve colleagues, other school professionals, families, and various stakeholders; and advance their development as a reflective practitioner.

6.3 Utilize resources from professional mathematics education organizations such as print, digital, and virtual resources/collections.

**MUSIC, CHORAL**

**Standard 1 Common Body of Knowledge**

1.1 **Performance.** Prior to program completion, candidates must acquire:

1.1.1 Technical skills requisite for artistic self-expression in at least one major performance area at a level appropriate for the particular music concentration.

1.1.2 An overview understanding of the repertory in their major performance area and the ability to perform from a cross-section of that repertory.

1.1.3 The ability to read at sight with fluency demonstrating both general musicianship and, in the major performance area, a level of skill relevant to professional standards appropriate for the particular music concentration.
1.1.4 Knowledge and skills sufficient to work as a leader and in collaboration on matters of musical interpretation. Rehearsal and conducting skills are required as appropriate to the particular music concentration.

1.1.6 Growth in artistry, technical skills, collaborative competence and knowledge of repertory through regular ensemble experiences that are varied both in size and nature and continuous throughout the program.

1.2 **Musicianship Skills and Analysis.** Prior to program completion, candidates must acquire:

1.2.1 An understanding of the common elements and organizational patterns of music and their interaction, the ability to employ this understanding in aural, verbal, and visual analyses, and the ability to take aural dictation.

1.2.2 Sufficient understanding of and capability with musical forms, processes, and structures to use this knowledge and skill in compositional, performance, analytical, scholarly, and pedagogical applications according to the requisites of their specializations.

1.2.3 The ability to place music in historical, cultural, and stylistic contexts.

1.3 **Composition/Improvisation.** Prior to program completion, candidates must acquire a rudimentary capacity to create original or derivative music.

1.4 **History and Repertory.** Prior to program completion, candidates must acquire basic knowledge of music history and repertories through the present time, including study and experience of musical language and achievement in addition to that of the primary culture encompassing the area of specialization.

1.5 **Synthesis.** Prior to program completion, candidates must be able to work on musical problems by combining, as appropriate to the issue, their capabilities in performance; aural, verbal, and visual analysis; composition/improvisation; and history and repertory.

**Standard 2 Music Competencies for All Music Teachers**

2.1 **Conducting and Musical Leadership.** The prospective music teacher must be a competent conductor, able to create accurate and musically expressive performances with various types of
performing groups and in general classroom situations. Instruction in conducting includes score reading and the integration of analysis, style, performance practices, instrumentation, and conducting techniques.

2.2 **Arranging.** The prospective music teacher must be able to arrange and adapt music from a variety of sources to meet the needs and ability levels of individuals, school performing groups, and in classroom situations.

2.3 **Functional Performance.** In addition to the skills required for all musicians, functional performance abilities in keyboard and the voice are essential. Functional performance abilities in instruments appropriate to the candidate’s teaching specialization are also essential.

2.4 **Analysis/History/Literature.** The prospective music teacher should be able to apply analytical and historical knowledge to curriculum development, lesson planning, and daily classroom and performance activities. Candidates should be prepared to relate their understanding of music with respect to styles, literature, multiple cultural sources, and historical development, both in general and as related to their area(s) of specialization.

**Standard 3 Knowledge, Skills and Experiences for All Music Teachers**

Prior to program completion, prospective music teachers must have:

3.1 Knowledge and skills sufficient to teach beginning students on instruments and/or in voice as appropriate to the chosen areas of specialization.

3.2 Knowledge of content, methodologies, philosophies, materials, technologies, and curriculum development in music education.

3.3 Experiences in solo vocal or instrumental performance.

3.4 Experiences in ensembles that are varied both in size and nature.

3.5 The ability to lead performance-based instruction in a variety of settings.

3.6 Laboratory experiences in teaching beginning students in a variety of specializations.

**Standard 4 Teaching Competencies for all Music Teachers**
Prior to program completion, candidates must acquire:

4.1 Ability to teach music at various levels to different age groups and in a variety of classroom and ensemble settings in ways that develop knowledge of how music works syntactically as a communication medium and developmentally as an agent of civilization. This set of abilities includes effective classroom and rehearsal management.

4.2 An understanding of child growth and development and an understanding of principles of learning as they relate to music.

4.3 The ability to assess aptitudes, experiential backgrounds, orientations of individuals and groups of students, and the nature of subject matter, and to plan educational programs to meet assessed needs.

4.4 Knowledge of current methods, materials, and repertories available in various fields and levels of music education appropriate to the teaching specialization.

4.5 The ability to accept, amend, or reject methods and materials based on personal assessment of specific teaching situations.

4.6 An understanding of evaluative techniques and ability to apply them in assessing both the musical progress of students and the objectives and procedures of the curriculum.

**Standard 5 Teaching Competencies Unique to Choral or Instrumental Music**

5.1 Vocal/Choral Music. Prior to program completion, candidates must acquire:

5.1.1 Vocal and pedagogical skill sufficient to teach effective use of the voice.

5.1.2 Knowledge of content, methodologies, philosophies, materials, technologies, and curriculum development for vocal/choral music.

5.1.3 Experiences in solo vocal performance and in ensembles that are varied both in size and nature.
5.1.4 Performance ability sufficient to use at least one instrument as a teaching tool and to provide, transpose, and improvise accompaniments.

5.2 Instrumental Music. Prior to program completion, candidates must acquire:

5.2.1 Knowledge of and performance ability on wind, string, and percussion instruments sufficient to teach beginning students effectively in groups.

5.2.2 Knowledge of content, methodologies, philosophies, materials, technologies, and curriculum development for instrumental music.

5.2.3 Experiences solo instrumental performance and in ensembles of varied size and nature.

MUSIC, INSTRUMENTAL

Standard 1 Common Body of Knowledge

1.1 Performance. Prior to program completion, candidates must acquire:

1.1.1 Technical skills requisite for artistic self-expression in at least one major performance area at a level appropriate for the particular music concentration.

1.1.2 An overview understanding of the repertory in their major performance area and the ability to perform from a cross-section of that repertory.

1.1.3 The ability to read at sight with fluency demonstrating both general musicianship and, in the major performance area, a level of skill relevant to professional standards appropriate for the particular music concentration.

1.1.4 Knowledge and skills sufficient to work as a leader and in collaboration on matters of musical interpretation. Rehearsal and conducting skills are required as appropriate to the particular music concentration.

1.1.6 Growth in artistry, technical skills, collaborative competence and knowledge of repertory through regular ensemble experiences that are varied both in size and nature and continuous throughout the program.
1.2 **Musicianship Skills and Analysis.** Prior to program completion, candidates must acquire:

1.2.1 An understanding of the common elements and organizational patterns of music and their interaction, the ability to employ this understanding in aural, verbal, and visual analyses, and the ability to take aural dictation.

1.2.2 Sufficient understanding of and capability with musical forms, processes, and structures to use this knowledge and skill in compositional, performance, analytical, scholarly, and pedagogical applications according to the requisites of their specializations.

1.2.3 The ability to place music in historical, cultural, and stylistic contexts.

1.3 **Composition/Improvisation.** Prior to program completion, candidates must acquire a rudimentary capacity to create original or derivative music.

1.4 **History and Repertory.** Prior to program completion, candidates must acquire basic knowledge of music history and repertories through the present time, including study and experience of musical language and achievement in addition to that of the primary culture encompassing the area of specialization.

1.5 **Synthesis.** Prior to program completion, candidates must be able to work on musical problems by combining, as appropriate to the issue, their capabilities in performance; aural, verbal, and visual analysis; composition/improvisation; and history and repertory.

**Standard 2** **Music Competencies for All Music Teachers**

2.1 **Conducting and Musical Leadership.** The prospective music teacher must be a competent conductor, able to create accurate and musically expressive performances with various types of performing groups and in general classroom situations. Instruction in conducting includes score reading and the integration of analysis, style, performance practices, instrumentation, and conducting techniques.

2.2 **Arranging.** The prospective music teacher must be able to arrange and adapt music from a variety of sources to meet the needs and ability levels of individuals, school performing groups, and in classroom situations.
2.3 **Functional Performance.** In addition to the skills required for all musicians, functional performance abilities in keyboard and the voice are essential. Functional performance abilities in instruments appropriate to the candidate’s teaching specialization are also essential.

2.4 **Analysis/History/Literature.** The prospective music teacher should be able to apply analytical and historical knowledge to curriculum development, lesson planning, and daily classroom and performance activities. Candidates should be prepared to relate their understanding of music with respect to styles, literature, multiple cultural sources, and historical development, both in general and as related to their area(s) of specialization.

**Standard 3 Knowledge, Skills and Experiences for All Music Teachers**

Prior to program completion, prospective music teachers must have:

3.1 Knowledge and skills sufficient to teach beginning students on instruments and/or in voice as appropriate to the chosen areas of specialization.

3.2 Knowledge of content, methodologies, philosophies, materials, technologies, and curriculum development in music education.

3.3 Experiences in solo vocal or instrumental performance.

3.4 Experiences in ensembles that are varied both in size and nature.

3.5 The ability to lead performance-based instruction in a variety of settings.

3.6 Laboratory experiences in teaching beginning students in a variety of specializations.

**Standard 4 Teaching Competencies for all Music Teachers**

Prior to program completion, candidates must acquire:

4.1 Ability to teach music at various levels to different age groups and in a variety of classroom and ensemble settings in ways that develop knowledge of how music works syntactically as a communication medium and developmentally as an agent of civilization. This set of abilities includes effective classroom and rehearsal management.
4.2 An understanding of child growth and development and an understanding of principles of learning as they relate to music.

4.3 The ability to assess aptitudes, experiential backgrounds, orientations of individuals and groups of students, and the nature of subject matter, and to plan educational programs to meet assessed needs.

4.4 Knowledge of current methods, materials, and repertories available in various fields and levels of music education appropriate to the teaching specialization.

4.5 The ability to accept, amend, or reject methods and materials based on personal assessment of specific teaching situations.

4.6 An understanding of evaluative techniques and ability to apply them in assessing both the musical progress of students and the objectives and procedures of the curriculum.

**Standard 5 Teaching Competencies Unique to Choral or Instrumental Music**

5.1 **Vocal/Choral Music.** Prior to program completion, candidates must acquire:

5.1.1 Vocal and pedagogical skill sufficient to teach effective use of the voice.

5.1.2 Knowledge of content, methodologies, philosophies, materials, technologies, and curriculum development for vocal/choral music.

5.1.3 Experiences in solo vocal performance and in ensembles that are varied both in size and nature.

5.1.4 Performance ability sufficient to use at least one instrument as a teaching tool and to provide, transpose, and improvise accompaniments.

5.2 **Instrumental Music.** Prior to program completion, candidates must acquire:

5.2.1 Knowledge of and performance ability on wind, string, and percussion instruments sufficient to teach beginning students effectively in groups.
5.2.2 Knowledge of content, methodologies, philosophies, materials, technologies, and curriculum development for instrumental music.

5.2.3 Experiences solo instrumental performance and in ensembles of varied size and nature.
PHYSICAL EDUCATION

Physical Education Standard 1 Scientific and Theoretical Knowledge
Physical education teacher candidates know and apply discipline-specific scientific and theoretical concepts critical to the development of physically educated individuals. Prior to program completion, prospective physical education teachers:

PE 1.1 Describe and apply physiological and biomechanical concepts related to skillful movement, physical activity and fitness.

PE 1.2 Describe and apply motor learning and psychological/behavioral theory related to skillful movement, physical activity, and fitness.

PE 1.3 Describe and apply motor development theory and principles related to skillful movement, physical activity, and fitness.

PE 1.4 Identify historical, philosophical, and social perspectives of physical education issues and legislation.

PE 1.5 Analyze and correct critical elements of motor skills and performance concepts.

Physical Education Standard 2 Skill-Based and Fitness-Based Competence
Physical education teacher candidates are physically educated individuals with the knowledge and skills necessary to demonstrate competent movement performance and health-enhancing fitness as delineated in the NASPE P – 12 Standards. Prior to program completion, prospective physical education teachers:

PE 2.1 Demonstrate personal competence in motor skill performance for a variety of physical activities and movement patterns.

PE 2.2 Achieve and maintain a health-enhancing level of fitness throughout the program.

PE 2.3 Demonstrate performance concepts related to skillful movement in a variety of physical activities.

Physical Education Standard 3 Planning and Implementation
Physical education teacher candidates plan and implement developmentally appropriate learning experiences aligned with local, state, and national standards to address the diverse needs of all students. Prior to program completion, prospective physical education teachers:

PE 3.1 Design and implement short-term and long-term plans that are linked to program and instructional goals as well as a variety of student needs.

PE 3.2 Develop and implement appropriate (e.g., measurable, developmentally appropriate, performance-based) goals and objectives aligned with local, state and/or national standards.

PE 3.3 Design and implement content that is aligned with lesson objectives.

PE 3.4 Plan for and manage resources to provide active, fair, and equitable learning experiences.

PE 3.5 Plan and adapt instruction for diverse student needs, adding specific accommodations and/or modifications for student exceptionalities.

PE 3.6 Plan and implement progressive and sequential instruction that addresses the diverse needs of all students.

PE 3.7 Demonstrate knowledge of current technology by planning and implementing learning experiences that require students to appropriately use technology to meet lesson objectives.

**Physical Education Standard 4 Instructional Delivery and Management**

Physical education teacher candidates use effective communication and pedagogical skills and strategies to enhance student engagement and learning. Prior to program completion, prospective physical education teachers:

PE 4.1 Demonstrate effective verbal and non-verbal communication skills across a variety of instructional formats.

PE 4.2 Implement effective demonstrations, explanations, and instructional cues and prompts to link physical activity concepts to appropriate learning experiences.

PE 4.3 Provide effective instructional feedback for skill acquisition, student learning and motivation.
PE 4.4 Recognize the changing dynamics of the environment and adjust instructional tasks based on student responses.

PE 4.5 Use managerial rules, routines, and transitions to create and maintain a safe and effective learning environment.

PE 4.6 Implement strategies to help students demonstrate responsible personal and social behaviors in a productive learning environment.

Physical Education Standard 5 Impact on Student Learning
Physical education teacher candidates utilize assessments and reflection to foster student learning and inform decisions about instruction. Prior to program completion, prospective physical education teachers:

PE 5.1 Select or create appropriate assessments that will measure student achievement of goals and objectives.

PE 5.2 Use appropriate assessments to evaluate student learning before, during, and after instruction.

PE 5.3 Utilize the reflective cycle to implement change in teacher performance, student learning and/or instructional goals and decisions.

Physical Education Standard 6 Professionalism
Physical education teacher candidates demonstrate dispositions essential to becoming effective professionals. Prior to program completion, prospective physical education teachers:

PE 6.1 Demonstrate behaviors that are consistent with the belief that all students can become physically educated individuals.

PE 6.2 Participate in activities that enhance collaboration and lead to professional growth and development.

PE 6.3 Demonstrate behaviors that are consistent with the professional ethics of highly qualified teachers.
PE 6.4 Communicate in ways that convey respect and sensitivity.

**PHYSICS**

**ALL SCIENCE (AS) Programs**

**Standard 1 Content Knowledge**

Effective teachers of science understand and articulate the knowledge and practices of contemporary science. They interrelate and interpret important concepts, ideas, and applications in their fields of certification. Candidates:

AS 1.1 Understand the major concepts, principles, theories, laws, and interrelationships of their fields of licensure/certification and supporting fields as recommended by the National Science Teachers Association.

AS 1.2 Understand the central concepts of the supporting disciplines and the supporting role of science-specific technology.

AS 1.3 Show an understanding of state and national curriculum standards and their impact on the content knowledge necessary for teaching 6-12 students.

**ALL SCIENCES (AS) Programs**

**Standard 2 Content Pedagogy**

Effective teachers of science understand how students learn and develop scientific knowledge. Preservice teachers use scientific inquiry to develop this knowledge for all students.

AS 2.1 Plan multiple lessons using a variety of inquiry approaches that demonstrate their knowledge and understanding of how all students learn science.

AS 2.2 Include active inquiry lessons where students collect and interpret data in order to develop and communicate concepts and understand scientific processes, relationships and natural patterns from empirical experiences. Applications of science-specific technology are included in the lessons when appropriate.

AS 2.3 Design instruction and assessment strategies that confront and address naive concepts/preconceptions.

**ALL SCIENCES (AS) Programs**

**Standard 3 Learning Environments**
Effective teachers of science are able to plan for engaging all students in science learning by setting appropriate goals that are consistent with knowledge of how students learn science and are aligned with state and national standards. The plans reflect the nature and social context of science, inquiry, and appropriate safety considerations. Candidates design and select learning activities, instructional settings, and resources—including science-specific technology, to achieve those goals; and they plan fair and equitable assessment strategies to evaluate whether the learning goals are met. Candidates:

AS 3.1 Use a variety of strategies that demonstrate the candidates’ knowledge and understanding of how to select the appropriate teaching and learning activities— including laboratory or field settings and applicable instruments and/or technology- to allow access so that all students learn. These strategies are inclusive and motivating for all students.

AS 3.2 Develop lesson plans that include active inquiry lessons where students collect and interpret data using applicable science-specific technology in order to develop concepts, understand scientific processes, relationships and natural patterns from empirical experiences. These plans provide for equitable achievement of science literacy for all students.

AS 3.3 Plan fair and equitable assessment strategies to analyze student learning and to evaluate if the learning goals are met. Assessment strategies are designed to continuously evaluate preconceptions and ideas that students hold and the understandings that students have formulated.

AS 3.4 Plan a learning environment and learning experiences for all students that demonstrate chemical safety, safety procedures, and the ethical treatment of living organisms within their licensure/certification area.

**ALL SCIENCES (AS) Programs**

**Standard 4  Safety**

Effective teachers of science can, in a 6-12 classroom, demonstrate and maintain chemical safety, safety procedures, and the ethical treatment of living organisms to be used in the 6-12 science classroom as appropriate to their area of certification.

AS 4.1 Design and demonstrate activities in a 6-12 classroom that demonstrate an ability to implement emergency procedures and the maintenance of safety equipment, policies and procedures that comply with established state and/or national guidelines. Candidates ensure safe science activities appropriate for the abilities of all students.

AS 4.2 Design and demonstrate activities in a 6-12 classroom that demonstrate ethical decision-making with respect to the treatment of all living organisms in and out of the
classroom, emphasizing safe, humane, and ethical treatment of animals and complying with the legal restrictions on the collection, keeping, and use of living organisms.

**ALL SCIENCES (AS) Programs: Standard 5 Impact on Student Learning**
Effective teachers of science provide evidence to show that 6-12 students’ understanding of major science concepts, principles, theories, and laws have changed as a result of instruction by the candidate and that student knowledge is at a level of understanding beyond memorization. Candidates provide evidence for the diversity of students they teach.

AS 5.1 Collect, organize, analyze, and reflect on diagnostic, formative and summative evidence of a change in mental functioning demonstrating that scientific knowledge is gained and/or corrected.

AS 5.2 Provide data to show that 6-12 students are able to distinguish science from non-science, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science.

AS 5.3 Engage students in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.

**ALL SCIENCES (AS) Programs: Standard 6 Professional Knowledge and Skills**
Effective teachers of science strive continuously to improve their knowledge and understanding of the ever-changing knowledge base of both content and science pedagogy, including approaches for addressing inequities and inclusion for all students in science. They identify with and conduct themselves as part of the science education community. Candidates:

AS 6.1 Engage in professional development opportunities in their content field such as talks, symposiums, research opportunities, or projects within their community.

AS 6.2 Engage in professional development opportunities such as conferences, research opportunities, or projects within their community.

**Standard 1 Physics Content Knowledge**

**P1.1 Competency Requirements for All Science Teachers**
Candidates in physics demonstrate knowledge of:
P1.1.1 Multiple ways to organize perceptions of the world and how systems organize the studies and knowledge of science.

P1.1.2 Nature of scientific evidence and the use of models for explanation.

P1.1.3 Measurement as a way of knowing and organizing observations of constancy and change.

P1.1.4 Development of natural systems and factors that result in change over time or equilibrium.

P1.1.5 Interrelationships of form, function, and behaviors in living and nonliving systems.

**P1.2 Core Competencies in Physics**
Candidates in physics demonstrate knowledge of:

P1.2.1 Energy, work, and power.

P1.2.2 Motion, major forces, and momentum.

P1.2.3 Newtonian physics with engineering applications.

P1.2.4 Conservation mass, momentum, energy, and charge.

P1.2.5 Physical properties of matter.

P1.2.6 Kinetic-molecular motion and atomic models.

P1.2.7 Radioactivity, nuclear reactors, fission, and fusion.

P1.2.8 Wave theory, sound, light, the electromagnetic spectrum and optics.

P1.2.9 Electricity and magnetism.

P1.2.10 Fundamental processes of investigating in physics.
P1.2.11 Application of physics in environmental quality and to personal and community health.

**P1.3 Advanced Competencies in Physics**
Candidates in physics demonstrate knowledge of:

P1.3.1 Thermodynamics and energy-matter relationships.

P1.3.2 Nuclear physics including matter-energy duality and reactivity.

P1.3.3 Angular rotation and momentum, centripetal forces, and vector analysis.

P1.3.4 Quantum mechanics, space-time relationships, and special relativity.

P1.3.5 Models of nuclear and subatomic structures and behavior.

P1.3.6 Light behavior, including wave-particle duality and models.

P1.3.7 Electrical phenomena including electric fields, vector analysis, energy, potential, capacitance, and inductance.

P1.3.8 Issues related to physics such as disposal of nuclear waste, light pollution, shielding communication systems and weapons development.

P1.3.9 Historical development and cosmological perspectives in physics including contributions of significant figures and underrepresented groups, and development of theories in physics.

P1.3.10 How to design, conduct, and report research in physics.

P1.3.11 Applications of physics and engineering in society, business, industry, and health field.

**P1.4 Supporting Competencies for Physics**
Candidates in physics demonstrate knowledge of:

P1.4.1
Biology:

P1.4.1.1 Organization of life.

P1.4.1.2 Bioenergetics.

P1.4.1.3 Biomechanics.

P1.4.1.4 Cycles of matter.

Chemistry:

P1.4.2.1 Organization of matter and energy.

P1.4.2.2 Electrochemistry.

P1.4.2.3 Thermodynamics.

P1.4.2.4 Bonding.

Earth Sciences and/or Astronomy:

P1.4.3.1 Structure of the universe.

P1.4.3.2 Energy.

P1.4.3.3 Interactions of matter.

Mathematical and Statistical Concepts and Skills:

P1.4.4.1 Statistics.
P1.4.4.2 Use of differential equations

P1.4.4.3 Calculus.

SPANISH

**Standard 1 Language Proficiency: Interpersonal, Interpretive, and Presentational**
Candidates possess a high level of proficiency in the target language they will teach. They demonstrate the ability to:

1.1 Speak in the interpersonal mode of communication at a minimum level of “Advanced Low” or “Intermediate High” (for Arabic, Chinese, Japanese, and Korean) on the ACTFL Oral Proficiency Interview (OPI) according to the target language being taught.

1.2 Interpret oral, printed, and video texts by demonstrating both literal and figurative or symbolic comprehension.

1.3 Present oral and written information to audiences of listeners or readers, using language at a minimum level of “Advanced Low” or “Intermediate High” according to the target language being taught.

**Standard 2 Cultures, Linguistics, Literature, and Concepts from Other Disciplines**
Candidates demonstrate understanding of the multiple content areas that comprise the field of foreign language studies. They:

2.1 Demonstrate target cultural understandings and compare cultures through perspectives, products, and practices of those cultures.

2.2 Demonstrate understanding of linguistics and the changing nature of language, and compare language systems.

2.3 Demonstrate understanding of texts on literary and cultural themes as well as interdisciplinary topics.

**Standard 3 Language Acquisition Theories and Knowledge of Students and Their Needs**
Candidates:
3.1 Demonstrate an understanding of key principles of language acquisition and create linguistically and culturally rich learning environments.

3.2 Demonstrate an understanding of child development to create a supportive learning environment for each student.

**Standard 4 Integration of Standards in Planning and Instruction**

Candidates:

4.1 Demonstrate an understanding of the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards and use them as the basis for instructional planning.

4.2 Integrate the goal areas of the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards in their classroom practice.

4.3 Use the *Standards for Foreign Language Learning in the 21st Century* and Alabama standards to select and integrate authentic texts, use technology, and adapt and create instructional materials for use in communication.

**Standard 5 Assessment of Languages and Cultures – Impact on Student Learning**

Candidates:

5.1 Design and use ongoing performance assessments using a variety of assessment models for all learners, including diverse students.

5.2 Reflect on and analyze the results of student assessments, adjust instruction accordingly, and use data to inform and strengthen subsequent instruction.

5.3 Interpret and report the results of student performances to all stakeholders in the community, with particular emphasis on building student responsibility for their own learning.

**Standard 6 Professional Development, Advocacy, and Ethics**

Candidates:

6.1 Engage in ongoing professional development opportunities that strengthen their own linguistic, cultural and pedagogical competence and promote reflection on practice.
6.2 Articulate the role and value of languages and cultures in preparing all students to interact in the global community of the 21st century through collaboration and advocacy with all stakeholders.

6.3 Use inquiry and reflection to understand and explain the opportunities and responsibilities inherent in being a professional language educator and demonstrate a commitment to equitable and ethical interactions with all students, colleagues and other stakeholders.

**VISUAL ARTS**

**Standard 1: Art Competencies**
The following basic competencies are essential to all visual arts teachers:

1.1 **Studio Art Competencies.** The prospective teacher of visual arts must be:

1.1.1 Familiar with the basic expressive, technical, procedural and organizational skills, and conceptual insights that can be developed through studio arts and design experience, including a variety of two- and three-dimensional media and processes.

1.1.2 Familiar with traditional processes as well as newer technological developments in environmental and functional design fields.

1.1.3 Able to make students emphatically aware of the all-important process of artistic creation from conceptualized image to finished artwork.

1.2 **Art History and Analysis.** The prospective teacher of visual arts must have an understanding of:

1.2.1 The major styles and periods of art history, analytical methods, and theories of criticism.

1.2.2 The development of past and contemporary art forms in Western and non-Western cultures.

1.2.3 Contending philosophies of art.

1.2.4 The fundamental and integral relationships of all these components to the making of art.
1.3 **Technical Processes.** The prospective teacher of visual arts should have functional knowledge in such areas as the physics of light, chemistry of pigments, the chemical and thermal aspects of shaping materials, and the basic technologies involved in printmaking, photography, filmmaking, and video.

**Standard 2: Teaching Competencies.**
The prospective teacher of visual arts must be able to connect an understanding of educational processes and structures with an understanding of relationships among the arts, sciences, and humanities, in order to apply art competencies in teaching situations and to integrate visual arts instruction into the total process of education. Prior to program completion, prospective teachers of visual arts shall demonstrate specific competencies including:

2.1 An understanding of child development and the identification and understanding of psychological principles of learning as they relate to art education.

2.2 An understanding of the philosophical and social foundation underlying visual arts in education and ability to express a rationale for personal attitudes and beliefs.

2.3 Ability to assess aptitudes, experiential backgrounds, and interests of individuals and groups of students, and to devise learning experiences to meet assessed needs.

2.4 Knowledge of current methods and materials available in all fields and levels of visual arts education, including consideration of safety issues related to the use of art materials and art processes.

2.5 Basic understanding of the principles and methods of developing curricula and the short- and long-term instructional units that comprise them.

2.6 Ability to accept, amend, or reject methods and materials based on assessment of specific teaching situations.

2.7 An understanding of evaluation techniques and the ability to apply them in assessing both the progress of students and the objectives and procedures of the curriculum.
2.8 Ability to organize continuing study and to incorporate knowledge gained into self-evaluation and professional growth.
Class A

INSTRUCTIONAL LEADERSHIP

Standard 1: Mission, Vision, and Core Values.

Effective instructional leaders develop, advocate for, and enact a shared mission, vision, and core values of high-quality education and academic success and well-being of each student. Prospective instructional leaders will be prepared and able to:

1.1 Develop an educational mission for the school to promote the academic success and well-being of each student.

1.2 In collaboration with members of the school and the community and using relevant data, develop and promote a vision for the school focused on the successful learning and development of each child and on instructional and organizational practices that promote such success.

1.3 Articulate, advocate, and cultivate core values that define the school’s culture and stress the imperative of child-centered education; high expectations and student support; equity, inclusiveness, and social justice; openness, caring, and trust; and continuous improvement.

1.4 Strategically develop, implement, and evaluate actions to achieve the vision for the school.

1.5 Review the school’s mission and vision and adjust them to changing expectations and opportunities for the school, and changing needs and situations of students.

1.6 Develop shared understanding of and commitment to mission, vision, and core values within the school and the community.

1.7 Model and pursue the school’s mission, vision, and core values in all aspects of leadership.

Standard 2: Ethics and Professional Norms.

Effective instructional leaders act ethically and according to professional norms to promote each student’s academic success and well-being. Prospective instructional leaders will be prepared and able to:

2.1 Act ethically and professionally in personal conduct, relationships with others, decision-making, stewardship of the school’s resources, and all aspects of school leadership.

2.2 Act according to and promote the professional norms of integrity, fairness, transparency, trust, collaboration, perseverance, learning, and continuous improvement.
2.3 Place children at the center of education and accept responsibility for each student’s academic success and well-being.

2.4 Safeguard and promote the values of democracy, individual freedom and responsibility, equity, social justice, community, and diversity.

2.5 Lead with interpersonal and communication skill, social-emotional insight, and understanding of all students’ and staff members’ backgrounds and cultures.

2.6 Provide moral direction for the school and promote ethical and professional behavior among faculty and staff.

**Standard 3: Equity and Cultural Responsiveness.**

Effective instructional leaders strive for equity of educational opportunity and culturally responsive practices to promote each student’s academic success and well-being. Prospective instructional leaders will be prepared and able to:

3.1 Ensure that each student is treated fairly, respectfully, and with an understanding of each student’s culture and context.

3.2 Recognize, respect, and employ each student’s strengths, diversity, and culture as assets for teaching and learning.

3.3 Ensure that each student has equitable access to effective teachers, learning opportunities, academic and social support, and other resources necessary for success.

3.4 Develop student policies and address student misconduct in a positive, fair, and unbiased manner.

3.5 Confront and alter institutional biases of student marginalization, deficit-based schooling, and low expectations associated with race, class, culture and language, gender and sexual orientation, and disability or special status.

3.6 Promote the preparation of students to live productively in and contribute to the diverse cultural contexts of a global society.

3.7 Act with cultural competence and responsiveness in their interactions, decision making, and practice.

3.8 Address matters of equity and cultural responsiveness in all aspects of leadership.

**Standard 4: Curriculum, Instruction, and Assessment**
Effective instructional leaders develop and support intellectually rigorous and coherent systems of curriculum, instruction, and assessment to promote each student’s academic success and well-being. Prospective instructional leaders will be prepared and able to:

4.1 Implement coherent systems of curriculum, instruction, and assessment that promote the mission, vision, and core values of the school, embody high expectations for student learning, align with academic standards, and are culturally responsive.

4.2 Align and focus systems of curriculum, instruction, and assessment within and across grade levels to promote student academic success, love of learning, the identities and habits of learners, and healthy sense of self.

4.3 Promote instructional practice that is consistent with knowledge of child learning and development, effective pedagogy, and the needs of each student.

4.4 Ensure instructional practice that is intellectually challenging, authentic to student experiences, recognizes student strengths, and is differentiated and personalized.

4.5 Promote the effective use of technology in the service of teaching and learning.

4.6 Employ valid assessments that are consistent with knowledge of child learning and development and technical standards of measurement.

4.7 Use assessment data appropriately and within technical limitations to monitor student progress and improve instruction.

**Standard 5: Community of Care and Support for Students**

Effective instructional leaders cultivate an inclusive, caring, and supportive school community that promotes the academic success and well-being of each student. Prospective instructional leaders will be prepared and able to:

5.1 Build and maintain a safe, caring, and healthy school environment that meets the academic, social, emotional, and physical needs of each student.

5.2 Create and sustain a school environment in which each student is known, accepted and valued, trusted and respected, cared for, and encouraged to be an active and responsible member of the school community.

5.3 Provide coherent systems of academic and social supports, services, extracurricular activities, and accommodations to meet the range of learning needs of each student.

5.4 Promote adult-student, student-peer, and school-community relationships that value and support academic learning and positive social and emotional development.
5.5 Cultivate and reinforce student engagement in school and positive student conduct.

5.6 Infuse the school’s learning environment with the cultures and languages of the school’s community.

**Standard 6: Professional Capacity and School Personnel**

Effective instructional leaders develop the professional capacity and practice of school personnel to promote each student’s academic success and well-being. Prospective instructional leaders will be prepared and able to:

6.1 Recruit, hire, support, develop, and retain effective and caring teachers and other professional staff and form them into an educationally effective faculty.

6.2 Plan for and manage staff turnover and succession, providing opportunities for effective induction and mentoring of new personnel.

6.3 Develop teachers’ and staff members’ professional knowledge, skills, and practice through differentiated opportunities for learning and growth, guided by understanding of professional and adult learning and development.

6.4 Foster continuous improvement of individual and collective instructional capacity to achieve outcomes envisioned for each student.

6.5 Deliver actionable feedback about instruction and other professional practice through valid, research-anchored systems of supervision and evaluation to support the development of teachers’ and staff members’ knowledge, skills, and practice.

6.6 Empower and motivate teachers and staff to the highest levels of professional practice and to continuous learning and improvement.

6.7 Develop the capacity, opportunities, and support for teacher leadership and leadership from other members of the school community.

6.8 Promote the personal and professional health, well-being, and work-life balance of faculty and staff.

6.9 Tend to their own learning and effectiveness through reflection, study, and improvement, maintaining a healthy work-life balance.
Standard 7: Professional Community for Teachers and Staff

Effective instructional leaders foster a professional community of teachers and other professional staff to promote each student’s academic success and well-being. Prospective instructional leaders will be prepared and able to:

7.1 Develop workplace conditions for teachers and other professional staff that promote effective professional development, practice, and student learning.

7.2 Empower and entrust teachers and staff with collective responsibility for meeting the academic, social, emotional, and physical needs of each student, pursuant to the mission, vision, and core values of the school.

7.3 Establish and sustain a professional culture of engagement and commitment to shared vision, goals, and objectives pertaining to the education of the whole child; high expectations for professional work; ethical and equitable practice; trust and open communication; collaboration, collective efficacy, and continuous individual and organizational learning and improvement.

7.4 Promote mutual accountability among teachers and other professional staff for each student’s success and the effectiveness of the school as a whole.

7.5 Develop and support open, productive, caring, and trusting working relationships among leaders, faculty, and staff to promote professional capacity and the improvement of practice.

7.6 Design and implement job-embedded and other opportunities for professional learning collaboratively with faculty and staff.

7.7 Provide opportunities for collaborative examination of practice, collegial feedback, and collective learning.

7.8 Encourage faculty-initiated improvement of programs and practices.

Standard 8: Meaningful Engagement of Families and Community

Effective instructional leaders engage families and the community in meaningful, reciprocal, and mutually beneficial ways to promote each student’s academic success and well-being. Prospective instructional leaders will be prepared and able to:

8.1 Be approachable, accessible, and welcoming to families and members of the community.

8.2 Create and sustain positive, collaborative, and productive relationships with families and the community for the benefit of students.
8.3 Engage in regular and open two-way communication with families and the community about the school, students, needs, problems, and accomplishments.

8.4 Maintain a presence in the community to understand its strengths and needs, develop productive relationships, and engage its resources for the school.

8.5 Create means for the school community to partner with families to support student learning in and out of school.

8.6 Understand, value, and employ the community’s cultural, social, intellectual, and political resources to promote student learning and school improvement.

8.7 Develop and provide the school as a resource for families and the community.

8.8 Advocate for the school and district, and for the importance of education and student needs and priorities to families and the community.

8.9 Advocate publicly for the needs and priorities of students, families, and the community.

8.10 Build and sustain productive partnerships with public and private sectors to promote school improvement and student learning.

**Standard 9: Operations and Management**

Effective instructional leaders manage school operations and resources to promote each student’s academic success and well-being. Prospective instructional leaders will be prepared and able to:

9.1 Institute, manage, and monitor operations and administrative systems that promote the mission and vision of the school.

9.2 Strategically manage staff resources, assigning and scheduling teachers and staff to roles and responsibilities that optimize their professional capacity to address each student’s learning needs.

9.3 Seek, acquire, and manage fiscal, physical, and other resources to support curriculum, instruction, and assessment; student learning community; professional capacity and community; and family and community engagement.

9.4 Be responsible, ethical, and accountable stewards of the school’s monetary and nonmonetary resources, engaging in effective budgeting and accounting practices.

9.5 Protect teachers’ and other staff members’ work and learning from disruption.

9.6 Employ technology to improve the quality and efficiency of operations and management.
9.7 Develop and maintain data and communication systems to deliver actionable information for classroom and school improvement.

9.8 Know, comply with, and help the school community understand local, state, and federal laws, rights, policies, and regulations so as to promote student success.

9.9 Develop and manage relationships with feeder and connecting schools for enrollment management and curricular and instructional articulation.

9.10 Develop and manage productive relationships with the central office and school board.

9.11 Develop and administer systems for fair and equitable management of conflict among students, faculty and staff, leaders, families, and community.

9.12 Manage governance processes and internal and external politics toward achieving the school’s mission and vision.

**Standard 10: School Improvement**

Effective instructional leaders act as agents of continuous improvement to promote each student’s academic success and well-being. Prospective instructional leaders will be prepared and able to:

10.1 Seek to make school more effective for each student, teachers and staff, families, and the community.

10.2 Use methods of continuous improvement to achieve the vision, fulfill the mission, and promote the core values of the school.

10.3 Prepare the school and the community for improvement, promoting readiness, an imperative for improvement, instilling mutual commitment and accountability, and developing the knowledge, skills, and motivation to succeed in improvement.

10.4 Engage others in an ongoing process of evidence-based inquiry, learning, strategic goal setting, planning, implementation, and evaluation for continuous school and classroom improvement.

10.5 Employ situationally-appropriate strategies for improvement, including transformational and incremental, adaptive approaches and attention to different phases of implementation.

10.6 Assess and develop the capacity of staff to assess the value and applicability of emerging educational trends and the findings of research for the school and its improvement.
10.7 Develop technically appropriate systems of data collection, management, analysis, and use, connecting as needed to the district office and external partners for support in planning, implementation, monitoring, feedback, and evaluation.

10.8 Adopt a systems perspective and promote coherence among improvement efforts and all aspects of school organization, programs, and services.

10.9 Manage uncertainty, risk, competing initiatives, and politics of change with courage and perseverance, providing support and encouragement, and openly communicating the need for, process for, and outcomes of improvement efforts.

10.10 Develop and promote leadership among teachers and staff for inquiry, experimentation and innovation, and initiating and implementing improvement.
Class AA

TEACHER LEADER

Standard 1: Learner development.

Teacher leaders help to ensure that experienced and new teachers understand how learners grow and develop, recognizing that patterns of learning and development vary individually within and across the cognitive, linguistic, social, emotional, and physical areas, and design and implement developmentally appropriate and challenging learning experiences for all students. Prospective teacher leaders demonstrate the ability to assist teachers to:

Indicators

1.1 Regularly assess and group performance in order to design and modify instruction to meet learners’ needs in each area of development (cognitive, linguistic, social, emotional, and physical) and scaffold the next level of development.

1.2 Create developmentally appropriate instruction that takes into account individual learners’ strengths, interests, and needs and that enables each learner to advance and accelerate his/her learning.

1.3 Collaborate with families, communities, colleagues, and other professionals to promote learner growth and development.

1.4 Respect learners’ differing strengths and needs and use this information to further each learner’s development.

1.5 Use learners’ strengths as a basis for growth, and their misconceptions as opportunities for learning.

1.6 Take responsibility for promoting learners’ growth and development.

1.7 Value the input and contributions of families, colleagues, and other professionals in understanding and supporting each learner’s development.

Standard 2: Learning differences.

Teacher leaders help to ensure that experienced and new teachers use understanding of individual differences and diverse cultures and communities to ensure inclusive learning environments that enable each learner to meet high standards. Prospective teacher leaders demonstrate the ability to assist teachers to:
Indicators

2.1 Design, adapt, and deliver instruction to address each student’s diverse learning strengths and needs and create opportunities for students to demonstrate their learning in different ways.

2.2 Make appropriate and timely provisions (e.g., pacing for individual rates of growth, task demands, communication, assessment, and response modes) for individual students with particular learning differences or needs.

2.3 Design instruction to build on learners’ prior knowledge and experiences, allowing learners to accelerate as they demonstrate their understandings.

2.4 Bring multiple perspectives to the discussion of content, including attention to learners’ personal, family, and community experiences and cultural norms.

2.5 Incorporate tools of language development into planning and instruction, including strategies for making content accessible to English language learners and for evaluating and supporting their development of English proficiency.

2.6 Access resources, supports, and specialized assistance and services to meet particular learning differences or needs.

2.7 Believe that all learners can achieve at high levels and persist in helping each learner reach his/her full potential.

2.8 Respect learners as individuals with differing personal and family backgrounds and various skills, abilities, perspectives, talents, and interests.

2.9 Make learners feel valued and help them learn to value each other.

2.10 Value diverse languages and dialects and seek to integrate them into his/her instructional practice to engage students in learning.

Standard 3: Learning environments.

Teacher leaders help to ensure that experienced and new teachers work with others to create environments that support individual and collaborative learning, and that encourage positive social interaction, active engagement in learning, and self-motivation. Prospective teacher leaders demonstrate the ability to assist teachers to:

Indicators
3.1 Collaborate with learners, families, and colleagues to build a safe, positive learning climate of openness, mutual respect, support, and inquiry.

3.2 Develop learning experiences that engage learners in collaborative and self-directed learning and that extend learner interaction with ideas and people locally and globally.

3.3 Collaborate with learners and colleagues to develop shared values and expectations for respectful interactions, rigorous academic discussions, and individual and group responsibility for quality work.

3.4 Manage the learning environment to actively and equitably engage learners by organizing, allocating, and coordinating the resources of time, space, and learners’ attention.

3.5 Use a variety of methods to engage learners in evaluating the learning environment and collaborate with learners to make appropriate adjustments.

3.6 Communicate verbally and nonverbally in ways that demonstrate respect for and responsiveness to the cultural backgrounds and differing perspectives learners bring to the learning environment.

3.7 Promote responsible learner use of interactive technologies to extend the possibilities for learning locally and globally.

3.8 Intentionally build learner capacity to collaborate in face-to-face and virtual environments through applying effective interpersonal communication skills.

3.9 Commit to working with learners, colleagues, families, and communities to establish positive and supportive learning environments.

3.10 Value the role of learners in promoting each other’s learning and recognize the importance of peer relationships in establishing a climate of learning.

3.11 Commit to supporting learners as they participate in decision making, engage in exploration and invention, work collaboratively and independently, and engage in purposeful learning.

3.12 Seek to foster respectful communication among all members of the learning community.

3.13 Thoughtfully and responsively listen and observe.

**Standard 4: Content knowledge.**

Teacher leaders help to ensure that experienced and new teachers understand the central concepts, tools of inquiry, and structures of the discipline(s) they teach and create learning
experiences that make these aspects of the discipline accessible and meaningful for learners to assure mastery of the content. Prospective teacher leaders demonstrate the ability to assist teachers to:

**Indicators**

4.1 Effectively use multiple representations and explanations that capture key ideas in the discipline, guide learners through learning progressions, and promote each learner’s achievement of content standards.

4.2 Engage students in learning experiences in the discipline(s) that encourage learners to understand, question, and analyze ideas from diverse perspectives so that they master the content.

4.3 Engage learners in applying methods of inquiry and standards of evidence used in the discipline.

4.4 Stimulate learner reflection on prior content knowledge, link new concepts to familiar concepts, and make connections to learners’ experiences.

4.5 Recognize learner misconceptions in a discipline that interfere with learning, and create experiences to build accurate conceptual understanding.

4.6 Evaluate and modify instructional resources and curriculum materials for their comprehensiveness, accuracy for representing particular concepts in the discipline, and appropriateness for his/her learners.

4.7 Use supplementary resources and technologies effectively to ensure accessibility and relevance for all learners.

4.8 Create opportunities for students to learn, practice, and master academic language in their content.

4.9 Access school and/or district-based resources to evaluate the learner’s content knowledge in their primary language.

4.10 Realize that content knowledge is not a fixed body of facts but is complex, culturally situated, and ever evolving, and keep abreast of new ideas and understanding in the field.

4.11 Appreciate multiple perspectives within the discipline and facilitate learners’ critical analysis of these perspectives.

4.12 Recognize the potential of bias in his/her representation of the discipline and seek to appropriately address problems of bias.
4.13 Commit to work toward each learner’s mastery of disciplinary content and skills.

**Standard 5: Application of content.**

Teacher leaders help to ensure that experienced and new teachers understand how to connect concepts and use differing perspectives to engage learners in critical thinking, creativity, and collaborative problem solving related to authentic local and global issues. Prospective teacher leaders demonstrate the ability to assist teachers to:

**Indicators**

5.1 Develop and implement projects that guide learners to analyze the complexities of an issue or question using perspectives from varied disciplines and cross-disciplinary skills (e.g., a water quality study that draws upon biology and chemistry to look at factual information and social studies to examine policy implications).

5.2 Engage learners in applying content knowledge to real world problems through the lens of interdisciplinary themes (e.g., financial literacy, environmental literacy).

5.3 Facilitate learners’ use of current tools and resources to maximize content learning in varied contexts.

5.4 Engage learners in questioning and challenging assumptions and approaches in order to foster innovation and problem solving in local and global contexts.

5.5 Develop learners’ communication skills in disciplinary and interdisciplinary contexts by creating meaningful opportunities to employ a variety of forms of communication that address varied audiences and purposes.

5.6 Engage learners in generating and evaluating new ideas and novel approaches, seeking inventive solutions to problems, and developing original work.

5.7 Facilitate learners’ ability to develop diverse social and cultural perspectives that expand their understanding of local and global issues and create novel approaches to solving problems.

5.8 Develop and implement supports for learner literacy development across content areas.

5.9 Constantly explore how to use disciplinary knowledge as a lens to address local and global issues.

5.10 Value knowledge outside his/her own content area and how such knowledge enhances student learning.
5.11 Value flexible learning environments that encourage learner exploration, discovery, and expression across content areas.

**Standard 6: Assessment.**

Teacher leaders help to ensure that experienced and new teachers understand and use multiple methods of assessment to engage learners in their own growth, to monitor learner progress, and to guide the teacher’s and learner’s decision making. Prospective teacher leaders demonstrate the ability to assist teachers to:

Indicators

6.1 Balance the use of formative and summative assessment as appropriate to support, verify, and document learning.

6.2 Design assessments that match learning objectives with assessment methods and minimize sources of bias that can distort assessment results.

6.3 Work independently and collaboratively to examine test and other performance data to understand each learner’s progress and to guide planning.

6.4 Engage learners in understanding and identifying quality work and provide them with effective descriptive feedback to guide their progress toward that work.

6.5 Engage learners in multiple ways of demonstrating knowledge and skill as part of the assessment process.

6.6 Model and structure processes that guide learners in examining their own thinking and learning as well as the performance of others.

6.7 Effectively use multiple and appropriate types of assessment data to identify each student’s learning needs and to develop differentiated learning experiences.

6.8 Prepare all learners for the demands of particular assessment formats and make appropriate accommodations in assessments or testing conditions, especially for learners with disabilities and language learning needs.

6.9 Continually seek appropriate ways to employ technology to support assessment practice both to engage learners more fully and to assess and address learner needs.

6.10 Commit to engaging learners actively in assessment processes and to developing each learner’s capacity to review and communicate about her or his own progress and learning.

6.11 Take responsibility for aligning instruction and assessment with learning goals.
6.12 Commit to providing timely and effective descriptive feedback to learners on their progress.

6.13 Commit to using multiple types of assessment processes to support, verify, and document learning.

6.14 Commit to making accommodations in assessments and testing conditions, especially for learners with disabilities and language learning needs.

6.15 Commit to the ethical use of various assessments and assessment data to identify learner strengths and needs to promote learner growth.

**Standard 7: Planning for instruction.**

Teacher leaders help to ensure that experienced and new teachers plan instruction that supports every student in meeting rigorous learning goals by drawing upon knowledge of content areas, curriculum, cross-disciplinary skills, and pedagogy, as well as knowledge of learners and the community context. Prospective teacher leaders demonstrate the ability to assist teachers to:

**Indicators**

7.1 Individually and collaboratively select and create learning experiences that are appropriate for curriculum goals and content standards, and are relevant to learners.

7.2 Plan how to achieve each student’s learning goals, choosing appropriate strategies and accommodations, resources, and materials to differentiate instruction for individuals and groups of learners.

7.3 Develop appropriate sequencing of learning experiences and provide multiple ways to demonstrate knowledge and skill.

7.4 Plan for instruction based on formative and summative assessment data, prior learner knowledge, and learner interest.

7.5 Plan collaboratively with professionals who have specialized expertise (e.g., special educators, related service providers, language learning specialists, librarians, media specialists) to design and jointly deliver an appropriate learning experience to meet unique learning needs.

7.6 Evaluate plans in relation to short- and long-range goals and systematically adjust plans to meet each student’s learning needs and enhance learning.
7.7 Respect learners’ diverse strengths and needs and commit to using this information to plan effective instruction.

7.8 Value planning as a collegial activity that takes into consideration the input of learners, colleagues, families, and the larger community.

7.9 Take professional responsibility to use short- and long-term planning as a means of assuring student learning.

7.10 Believe that plans must always be open to adjustment and revision based on learner needs and changing circumstances.

**Standard 8: Instructional strategies.**

Teacher leaders help to ensure that experienced and new teachers understand and use a variety of instructional strategies to encourage learners to develop deep understanding of content areas and their connections, and to build skills to apply knowledge in meaningful ways. Prospective teacher leaders demonstrate the ability to assist teachers to:

**Indicators**

8.1 Use appropriate strategies and resources to adapt instruction to the needs of individuals and groups of learners.

8.2 Continuously monitor student learning, engage learners in assessing their progress, and adjust instruction in response to student learning needs.

8.3 Collaborate with learners to design and implement relevant learning experiences, identify their strengths, and access family and community resources to develop their areas of interest.

8.4 Vary the teacher’s role in the instructional process (e.g., instructor, facilitator, coach, audience) in relation to the content and purposes of instruction and the needs of learners.

8.5 Provide multiple models and representations of concepts and skills with opportunities for learners to demonstrate their knowledge through a variety of products and performances.

8.6 Engage all learners in developing higher order questioning skills and metacognitive processes.

8.7 Engage learners in using a range of learning skills and technology tools to access, interpret, evaluate, and apply information.

8.8 Use a variety of instructional strategies to support and expand learners’ communication through speaking, listening, reading, writing, and other modes.
8.9 Ask questions to stimulate discussion that serves different purposes (e.g., probing for learner understanding, helping learners articulate their ideas and thinking processes, stimulating curiosity, and helping learners to question).

8.10 Commit to deepening awareness and understanding the strengths and needs of diverse learners when planning and adjusting instruction.

8.11 Value the variety of ways people communicate and encourage learners to develop and use multiple forms of communication.

8.12 Commit to exploring how the use of new and emerging technologies can support and promote student learning.

8.13 Value flexibility and reciprocity in the teaching process as necessary for adapting instruction to learner responses, ideas, and needs.

**Standard 9: Professional learning and ethical practice.**

Teacher leaders help to ensure that experienced and new teachers engage in ongoing professional learning and use evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapt practice to meet the needs of each learner. Prospective teacher leaders demonstrate the ability to assist teachers to:

**Indicators**

9.1 Engage in ongoing learning opportunities to develop knowledge and skills in order to provide all learners with engaging curriculum and learning experiences based on local and state standards.

9.2 Engage in meaningful and appropriate professional learning experiences aligned with his/her own needs and the needs of the learners, school, and system.

9.3 Independently and in collaboration with colleagues, use a variety of data (e.g., systematic observation, information about learners, research) to evaluate the outcomes of teaching and learning and to adapt planning and practice.

9.4 Actively seek professional, community, and technological resources, within and outside the school, as supports for analysis, reflection, and problem-solving.

9.5 Reflect on his/her personal biases and accesses resources to deepen his/her own understanding of cultural, ethnic, gender, and learning differences to build stronger relationships, and create more relevant learning experiences.
9.6 Advocate, model, and teach safe, legal, and ethical use of information and technology including appropriate documentation of sources and respect for others in the use of social media.

9.7 Take responsibility for student learning and use ongoing analysis and reflection to improve planning and practice.

9.8 Commit to developing understanding of his/her own frames of reference (e.g., culture, gender, language, abilities, ways of knowing), the potential biases in these frames, and their impact on expectations for and relationships with learners and their families.

9.9 See himself/herself as a learner, continuously seeking opportunities to draw upon current education policy and research as sources of analysis and reflection to improve practice.

9.10 Understand the expectations of the profession including The Alabama Educator Code of Ethics, professional standards of practice, and relevant law and policy.

**Standard 10: Leadership and collaboration.**

Teacher leaders help to ensure that experienced and new teachers seek appropriate leadership roles and opportunities to take responsibility for student learning, to collaborate with learners, families, colleagues, other school professionals, and community members to ensure learner growth, and to advance the profession. Prospective teacher leaders demonstrate the ability to assist teachers to:

**Indicators**

10.1 Take an active role on the instructional team, giving and receiving feedback on practice, examining learner work, analyzing data from multiple sources, and sharing responsibility for decision making and accountability for each student’s learning.

10.2 Work with other school professionals to plan and jointly facilitate learning on how to meet diverse needs of learners.

10.3 Engage collaboratively in the schoolwide effort to build a shared vision and supportive culture, identify common goals, and monitor and evaluate progress toward those goals.

10.4 Work collaboratively with learners and their families to establish mutual expectations and ongoing communication to support learner development and achievement.

10.5 Work with school colleagues to build ongoing connections with community resources to enhance student learning and well-being.
10.6 Engage in professional learning, contribute to the knowledge and skill of others, and work collaboratively to advance professional practice.

10.7 Use technological tools and a variety of communication strategies to build local and global learning communities that engage learners, families, and colleagues.

10.8 Use and generate meaningful research on education issues and policies.

10.9 Seek appropriate opportunities to model effective practice for colleagues, to lead professional learning activities, and to serve in other leadership roles.

10.10 Advocate to meet the needs of learners, to strengthen the learning environment, and to enact system change.

10.11 Take on leadership roles at the school, district, state, and/or national level and advocate for learners, the school, the community, and the profession.

10.12 Actively share responsibility for shaping and supporting the mission of his/her school as one of advocacy for learners and accountability for their success.

10.13 Respect families’ beliefs, norms, and expectations and seek to work collaboratively with learners and families in setting and meeting challenging goals.

10.14 Take initiative to grow and develop with colleagues through interactions that enhance practice and support student learning.

10.15 Take responsibility for contributing to and advancing the profession.

10.16 Embrace the challenge of continuous improvement and change.