

SECONDARY EDUCATION, M.T.

The Master of Teaching (M.T.) in Secondary Education is designed to prepare graduates to teach in the secondary education (grades 9-12) areas of English, mathematics, science, and social studies. The degree includes a minimum of 33 credit hours for those entering through the 5th-year route or a minimum of 36 credit hours for those entering through the career changer route.

All M.T. candidates must meet the program admission criteria, professional program and internship admission criteria, and certification criteria delineated in this bulletin for initial teacher certification programs. Graduation from the M.T. program requires successful completion of all coursework including internship and directed teaching and a comprehensive assessment. Placement for Internship II must be in a high school. Placement for Internship I and II are typically made in the Columbia metropolitan area.

Learning Outcomes

English Emphasis

Structure of the Basic Program: Candidates follow a specific curriculum and are expected to meet appropriate performance assessments for preservice English language arts teachers.

Attitudes for English Language Arts: Through modeling, advisement, instruction, field experiences, assessment of performance, and involvement in professional organizations, candidates adopt and strengthen professional attitudes needed by English language arts teachers.

- Candidates create an inclusive and supportive learning environment in which all students can engage in learning.
- Candidates use ELA to help their students become familiar with their own and others' cultures.
- Candidates demonstrate reflective practice, involvement in professional organizations, and collaboration with both faculty and other candidates.
- Candidates use practices designed to assist students in developing habits of critical thinking and judgment.
- Candidates make meaningful connections between the ELA curriculum and developments in culture, society, and education.
- Candidates engage their students in activities that demonstrate the role of arts and humanities in learning.

Knowledge of English Language Arts: Candidates are knowledgeable about language; literature; oral, visual, and written literacy; print and nonprint media; and technology.

- Candidates demonstrate knowledge of, and skills in the use of, the English language.
- Candidates demonstrate knowledge of the practices of oral, visual, and written literacy.
- Candidates demonstrate their knowledge of reading processes.
- Candidates demonstrate knowledge of different composing processes.
- Candidates demonstrate knowledge of, and uses for, an extensive range of literature.
- Candidates demonstrate knowledge of the range and influence of print and nonprint media and technology in contemporary culture.

- Candidates demonstrate knowledge of research theory and findings in English language arts.

Pedagogy for English Language Arts: Candidates acquire and demonstrate the dispositions and skills needed to integrate knowledge of English language arts, students, and teaching.

- Candidates examine and select resources for instruction such as textbooks, other print materials, videos, films, records, and software, appropriate for supporting the teaching of English language arts.
- Candidates align curriculum goals and teaching strategies with the organization of classroom environments and learning experiences to promote whole-class, small-group, and individual work.
- Candidates integrate interdisciplinary teaching strategies and materials into the teaching and learning process for students.
- Candidates create and sustain learning environments that promote respect for, and support of, individual differences of ethnicity, race, language, culture, gender, and ability.
- Candidates engage students often in meaningful discussions for the purposes of interpreting and evaluating ideas presented through oral, written, and/or visual forms.
- Candidates engage students in critical analysis of different media and communications technologies.
- Candidates engage students in learning experiences that consistently emphasize varied uses and purposes for language in communication.
- Candidates engage students in making meaning of texts through personal response.
- Candidates demonstrate that their students can select appropriate reading strategies that permit access to, and understanding of, a wide range of print and nonprint texts.
- Candidates integrate assessment consistently into instruction by using a variety of formal and informal assessment activities and instruments to evaluate processes and products, and creating regular opportunities to use a variety of ways to interpret and report assessment methods and results to students, parents, administrators, and other audiences.

Math Emphasis

- Knowledge of Problem Solving. Candidates know, understand and apply the process of mathematical problem solving.
- Knowledge of Reasoning and Proof. Candidates reason, construct, and evaluate mathematical arguments and develop an appreciation for mathematical rigor and inquiry.
- Knowledge of Mathematical Communication. Candidates communicate their mathematical thinking orally and in writing to peers, faculty and others.
- Knowledge of Mathematical Connections. Candidates recognize, use, and make connections between and among mathematical ideas and in contexts outside mathematics to build mathematical understanding.
- Knowledge of Mathematical Representation. Candidates use varied representations of mathematical ideas to support and deepen students' mathematical understanding.
- Knowledge of Technology. Candidates embrace technology as an essential tool for teaching and learning mathematics.
- Dispositions. Candidates support a positive disposition toward mathematical processes and mathematical learning.
- Knowledge of Mathematics Pedagogy. Candidates possess a deep understanding of how students learn mathematics and of

the pedagogical knowledge specific to mathematics teaching and learning

- Knowledge of Number and Operations. Candidates demonstrate computational proficiency, including a conceptual understanding of numbers, ways of representing number, relationships among number and number systems, and the meaning of operations.
- Knowledge of Different Perspectives on Algebra. Candidates emphasize relationships among quantities including functions, ways of representing mathematical relationships, and the analysis of change.
- Knowledge of Geometries. Candidates use spatial visualization and geometric modeling to explore and analyze geometric shapes, structures, and their properties.
- Knowledge of Calculus. Candidates demonstrate a conceptual understanding of limit, continuity, differentiation, and integration and a thorough background in techniques and application of the calculus.
- Knowledge of Discrete Mathematics. Candidates apply the fundamental ideas of discrete mathematics in the formulation and solution of problems.
- Knowledge of Data Analysis, Statistics, and Probability. Candidates demonstrate an understanding of concepts and practices related to data analysis, statistics, and probability.
- Knowledge of Measurement. Candidates apply and use measurement concepts and tools.
- Field-Based Experiences: Engage in a sequence of planned opportunities prior to student teaching that includes observing and participating secondary mathematics classrooms under the supervision of experienced and highly qualified teachers.
- Field-Based Experiences: Experience full-time student teaching secondary-level mathematics that is supervised by an experienced and highly qualified teacher and a university or college supervisor with elementary mathematics teaching experience.
- Field-Based Experiences: Demonstrate the ability to increase students' knowledge of mathematics.

Science Emphasis

- Content. Teachers of science understand and can articulate the knowledge and practices of contemporary science. They can interrelate and interpret important concepts, ideas, and applications in their fields of licensure; and can conduct scientific investigations. To show that they are prepared in content, teachers of science must demonstrate that they:
 - a. understand and can successfully convey to students the major concepts, principles, theories, laws, and interrelationships of their fields of licensure and supporting fields as recommended by the National Science Teachers Association;
 - b. understand and can successfully convey to students the unifying concepts of science delineated by the National Science Education Standards;
 - c. understand and can successfully convey to students important personal and technological applications of science in their fields of licensure;
 - d. understand research and can successfully design, conduct, report and
 - e. evaluate investigations in science; and understand and can successfully use mathematics to process and report data, and solve problems, in their field(s) of licensure.
- Nature of Science. Teachers of science engage students effectively in studies of the history, philosophy, and practice of science. They enable students to distinguish science from nonscience, understand the evolution and practice of science as a human endeavor, and critically analyze assertions made in the name of science. To show they are prepared to teach the nature of science, teachers of science must demonstrate that they:
 - a. understand the historical and cultural development of science and the evolution of knowledge in their discipline;
 - b. understand the philosophical tenets, assumptions, goals, and values that distinguish science from technology and from other ways of knowing the world; and
 - c. engage students successfully in studies of the nature of science including, when possible, the critical analysis of false or doubtful assertions made in the name of science.
- Inquiry. Teachers of science engage students both in studies of various methods of scientific inquiry and in active learning through scientific inquiry. They encourage students, individually and collaboratively, to observe, ask questions, design inquiries, and collect and interpret data in order to develop concepts and relationships from empirical experiences. To show that they are prepared to teach through inquiry, teachers of science must demonstrate that they:
 - a. understand the processes, tenets, and assumptions of multiple methods of inquiry leading to scientific knowledge; and
 - b. engage students successfully in developmentally appropriate inquiries that require them to develop concepts and relationships from their observations, data, and inferences in a scientific manner.
- Issues. Teachers of science recognize that informed citizens must be prepared to make decisions and take action on contemporary science- and technology-related issues of interest to the general society. They require students to conduct inquiries into the factual basis of such issues and to assess possible actions and outcomes based upon their goals and values. To show that they are prepared to engage students in studies of issues related to science, teachers of science must demonstrate that they:
 - a. understand socially important issues related to science and technology in their field of licensure, as well as processes used to analyze and make decisions on such issues; and
 - b. engage students successfully in the analysis of problems, including considerations of risks, costs, and benefits of alternative solutions; relating these to the knowledge, goals and values of the students.
- General Skills of Teaching. Teachers of science create a community of diverse learners who construct meaning from their science experiences and possess a disposition for further exploration and learning. They use, and can justify, a variety of classroom arrangements, groupings, actions, strategies, and methodologies. To show that they are prepared to create a community of diverse learners, teachers of science must demonstrate that they:
 - a. vary their teaching actions, strategies, and methods to promote the development of multiple student skills and levels of understanding;
 - b. successfully promote the learning of science by students with different abilities, needs, interests, and backgrounds;
 - c. successfully organize and engage students in collaborative learning using different student group learning strategies;
 - d. successfully use technological tools, including but not limited to computer technology, to access resources, collect and process data, and facilitate the learning of science;
 - e. understand and build effectively upon the prior beliefs, knowledge, experiences, and interests of students; and

- f. create and maintain a psychologically and socially safe and supportive learning environment. (optional to address this standard in the NSTA report)
- Curriculum. Teachers of science plan and implement an active, coherent, and effective curriculum that is consistent with the goals and recommendations of the National Science Education Standards. They begin with the end in mind and effectively incorporate contemporary practices and resources into their planning and teaching. To show that they are prepared to plan and implement an effective science curriculum, teachers of science must demonstrate that they:
 - a. understand the curricular recommendations of the National Science Education Standards, and can identify, access, and/or create resources and activities for science education that are consistent with the standards; and
 - b. plan and implement internally consistent units of study that address the diverse goals of the National Science Education Standards and the needs and abilities of students.
- Science in the Community. Teachers of science relate their discipline to their local and regional communities, involving stakeholders and using the individual, institutional, and natural resources of the community in their teaching. They actively engage students in science-related studies or activities related to locally important issues. To show that they are prepared to relate science to the community, teachers of science must demonstrate that they:
 - a. identify ways to relate science to the community, involve stakeholders, and use community resources to promote the learning of science; and
 - b. involve students successfully in activities that relate science to resources and stakeholders in the community or to the resolution of issues important to the community.
- Assessment. Teachers of science construct and use effective assessment strategies to determine the backgrounds and achievements of learners and facilitate their intellectual, social, and personal development. They assess students fairly and equitably, and require that students engage in ongoing self-assessment. To show that they are prepared to use assessment effectively, teachers of science must demonstrate that they:
 - a. use multiple assessment tools and strategies to achieve important goals for instruction that are aligned with methods of instruction and the needs of students;
 - b. use the results of multiple assessments to guide and modify instruction, the classroom environment, or the assessment process; and
 - c. use the results of assessments as vehicles for students to analyze their own learning, engaging students in reflective self-analysis of their own work.
- Safety and Welfare. Teachers of science organize safe and effective learning environments that promote the success of students and the welfare of all living things. They require and promote knowledge and respect for safety, and oversee the welfare of all living things used in the classroom or found in the field. To show that they are prepared, teachers of science must demonstrate that they:
 - a. understand the legal and ethical responsibilities of science teachers for the welfare of their students, the proper treatment of animals, and the maintenance and disposal of materials;
 - b. know and practice safe and proper techniques for the preparation, storage, dispensing, supervision, and disposal of all materials used in science instruction;
 - c. know and follow emergency procedures, maintain safety equipment, and ensure safety procedures appropriate for the activities and the abilities of students; and
 - d. treat all living organisms used in the classroom or found in the field in a safe, humane, and ethical manner and respect legal restrictions on their collection, keeping, and use.
- Professional Growth. Teachers of science strive continuously to grow and change, personally and professionally, to meet the diverse needs of their students, school, community, and profession. They have a desire and disposition for growth and betterment. To show their disposition for growth, teachers of science must demonstrate that they:
 - a. engage actively and continuously in opportunities for professional learning and leadership that reach beyond minimum job requirements;
 - b. reflect constantly upon their teaching and identify ways and means through which they may grow professionally;
 - c. use information from students, supervisors, colleagues and others to improve their teaching and facilitate their professional growth; and
 - d. interact effectively with colleagues, parents, and students; mentor new colleagues; and foster positive relationships with the community.

Social Studies Emphasis

- Culture and Cultural Diversity. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of culture and cultural diversity.
- Time, Continuity, and Change. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of time, continuity, and change.
- People, Places, and Environment. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of people, places, and environment.
- Individual Development and Identity. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of individual development and identity.
- Individuals, Groups and Institutions. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of individuals, groups, and institutions.
- Power, Authority, and Governance. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of power, authority and governance.
- Production, Distribution, and Consumption. Candidates in social studies should possess the knowledge, capabilities, and disposition to organize and provide instruction at the appropriate school level for the study of production, distribution, and consumption of goods and services.
- Science, Technology and Society. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of science, technology and society.

- Global Connections. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of global connections and interdependence.
- Civic Ideals and Practices. Candidates in social studies should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of civic ideals and practices.

Social Science Disciplines

- History. Candidates who are to be licensed to teach history at all school levels should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of history.
- Geography. Candidates who are to be licensed to teach geography at all school levels should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of geography.
- Civics and Government. Candidates who are to be licensed to teach civics and/or government at all school levels should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of civics and government.
- Economics. Candidates who are to be licensed to teach economics at all school levels should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of economics.
- Psychology. Candidates who are to be licensed to teach psychology at all school levels should possess the knowledge, capabilities, and dispositions to organize and provide instruction at the appropriate school level for the study of psychology.

Programmatic Standards

- Course or Courses on Teaching Social Studies. Institutions preparing social studies teachers should provide and require prospective social studies teachers to complete a course or courses dealing specifically with the nature of the social studies and with ideas, strategies, and techniques for teaching social studies at the appropriate licensure level.
- Qualified Social Studies Faculty. Institutions preparing social studies teachers should provide faculty in the social studies and social studies education components of the program who are recognized as:
 - a. exemplary teachers,
 - b. scholars in the fields of social studies and social studies education, and
 - c. informed about middle and secondary school classrooms and teaching.