Washington University’s Department of Education offers a part-time Master of Arts degree focused on an analysis of practice for practicing educators in a variety of settings. This analysis of practice allows educators to consider multiple and enhanced approaches for data collection, analysis, and reflection on educational issues involving educational assessment data, video microanalysis, learning sciences research and educational foundation concepts. We offer three strands of study — Professional Development, Elementary/Middle School Science Education, and Innovative Teacher Certification — that work to enhance the educator’s professional development in a particular area of focus.

Contact: Michele Augustin  
Phone: 314-935-3571  
Email: maugusti@wustl.edu  
Website: http://ucollege.wustl.edu/areas/education/masters

Degree Requirements

Master of Arts in Education—Instructional Process

Every MAEd–IP student must complete 13 credit units of core courses in addition to a minimum of 17 credits within one of the three strands described. Requirements may differ for those students pursuing the Innovative Certification strand, depending on the current specifications of Missouri’s Department of Elementary and Secondary Education.

The core course work focuses on an analysis of practice to enhance an educator’s reflective practice by involving a variety of approaches, such as educational assessment data, video microanalysis, learning sciences research, and educational foundation concepts. The program considers the teaching practice from the individual level to the broader foundations in a variety of disciplines.

For more information about core courses for this program, please visit the MAEd (https://ucollege.wustl.edu/programs/graduate/masters-education-maed/)- IP program page of the University College website. (https://ucollege.wustl.edu/programs/graduate/masters-education-maed/IP program page)

Strands of Study

Each student must complete the designated credit-unit requirement within the chosen strand of study, with a minimum of 30 total credits required to graduate.

Strand 1: Professional Development
(17 credits minimum)

Students who select this strand of study will design a course of study in conjunction with their adviser that is driven by their interests and needs identified via reflection and analysis in the core course work. Students in this strand may elect to do graduate-level course work in their content field, in education, or in other appropriate areas. University College offers strong graduate courses in American cultural studies, biology, English, history, international studies, and applied behavior analysis (within Psychological & Brain Sciences).

Examples of courses include the following:
• Additional Foundations of Education electives  
• Other elective courses from relevant areas

Strand 2: Elementary/Middle Science Education
(18 credits)

This list of U08 Educ 6000 courses is not all-inclusive; other U08 Educ 6000 courses may be substituted for those listed here. Possible courses include the following:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educ 6001</td>
<td>Topics in Education: Hands-On Science K-8: Electricity and Magnetism</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6002</td>
<td>Topics in Education: Hands-on Science K-8: Life Cycles and Heredity</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6005</td>
<td>Scientific Inquiry for the Classroom Teacher</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6008</td>
<td>Teaching the Process of Scientific Investigation</td>
<td>-3</td>
</tr>
<tr>
<td>Educ 6009</td>
<td>Hands-On Science K-8: Matter and Energy</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6010</td>
<td>Hands-On Science K-8: Mathematics Concepts</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6012</td>
<td>Hands-On Science K-8: Mathematics Concepts</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6013</td>
<td>Scientific Inquiry: Advanced Pedagogy for Educators</td>
<td>1.5</td>
</tr>
<tr>
<td>Educ 6019</td>
<td>Researched Practices in Math Instruction</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6022</td>
<td>Improving Content and Instruction: Algebra</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6031</td>
<td>Introduction to Computer Science Teaching</td>
<td>3</td>
</tr>
</tbody>
</table>

Strand 3: Innovative Teacher Certification
(36-54 credits)
This strand is for classroom teachers seeking teacher certification for middle or high school. Candidates must hold an undergraduate degree and a current teaching position in a middle or high school as an uncertified teacher.

The course work will vary based on the level of certification sought and the subject area course work to be completed, which will be determined by an adviser in teacher education after a review of transcripts.

Courses


U08 Educ 400 Independent Study
Credit variable, maximum 3 units.

U08 Educ 4000 Topics in Education
Topic varies from semester to semester. Credit 3 units.

U08 Educ 4035 Applying Principles of Equity in K-12 Teaching
This course explores the current theories shaping the way we think, teach and learn in K-12 settings. Teachers examine the social constructions of race, ethnicity, gender, social class and abilities along with the impacts these have on the educational and social experiences of students from historically marginalized backgrounds. We will consider how curriculum, instruction, and assessment might be redesigned with an applied equity lens. Projects will include the redesign of a curriculum unit in a current classroom with an applied equity lens, the presentation of the unit for group feedback, and a final paper illustrating continued equity-centered curriculum design. Credit 3 units. UColl: OLH

U08 Educ 4044 Video Microanalysis: Methods and Tools
The purpose of this course is to explore video microanalysis as a methodological tool for studying and valuing unconscious aspects of culturally diverse settings. Utilizing a social-cultural-theoretical lens, this type of analysis will reveal fleeting actions, subtle movements, peripheral events, and nonverbal communications that are not easily identified in real-time viewing. Specifically we may look at facial expressions, direction of gaze, hand movements, body position, and use of material resources as microtechniques to expand our capacity to explore minute aspects and alternative interpretations of social interactions. Same as L12 Educ 4033 Credit 3 units. A&S IQ: SSC, SD Arch: SSC Art: SSC

U08 Educ 4052 Educational Psychology: A Focus on Teaching and Learning in School Settings
This course examines psychological concepts and theories such as development, human motivation, and intelligence as applied in the process and practices of teaching and learning. In addition to readings and discussions, students spend three to five hours per week in either a preschool, elementary, or secondary school classroom. This course offers students an informed look at schooling in America and is designed for current teachers, prospective teachers, and for those simply interested in furthering their understanding of classroom interaction and the fundamental principles of teaching and learning. Be able to plan lessons and activities that address student's prior experiences, multiple intelligences, strengths, and needs to positively impact learning. Educational psychology topics also include classroom management, as well as understanding the importance of differentiated learning to address individual differences in ability, cultural background, and language. Students should enroll in the Lab section. Labs do not meet until after the first class. Prerequisite: Sophomore standing. Same as L12 Educ 4052 Credit 4 units. A&S IQ: SSC Arch: SSC Art: SSC BU: BA EN: S

U08 Educ 407 Curriculum and Instruction in Modern Foreign Languages
Modern foreign language curriculum in the secondary schools, with emphasis on the selection, organization, and appraisal of materials. Analysis of methods of instruction and evaluation in teaching modern foreign languages. Prerequisite: admission to teacher education program. Secondary teacher education majors are required to take 3 credit hours during the Fall semester in which student teaching is scheduled. Same as L12 Educ 407 Credit 3 units. A&S IQ: HUM Art: HUM EN: H

U08 Educ 413 Curriculum and Instruction in Art K-12
Art curriculum in the public schools, with emphasis on examination of methods and materials for teaching art. Prerequisite: admission to teacher education program or with approval by Director of Teacher Education. Offered Fall semester. Same as L12 Educ 413 Credit 3 units. A&S IQ: HUM Art: HUM EN: H

U08 Educ 414 Curriculum and Instruction in English
English curriculum in the secondary school; emphasis on the selection and organization of materials. Analysis of methods of instruction and evaluation in teaching literature and language. Prerequisite: admission to teacher education program. Secondary teacher education majors are required to take 3 credit hours during the year in which student teaching is completed. Offered Fall semester. Same as L12 Educ 414 Credit 3 units. A&S IQ: HUM Art: HUM EN: H

U08 Educ 415 Curriculum and Instruction in Science
This course presents a variety of investigative approaches to teaching secondary school science curriculum and instructional methods, including evaluation of curricular materials and assessment of student performance based on specific teaching objectives. The course assists in the development of criteria to guide the selection of science activities to achieve specified learning goals in a curriculum. Explicit connections will be made between various science lessons, curricular goals and both Missouri State and National Standards. In addition, course is designed to develop effective teaching strategies and approaches to curriculum development in science. Addresses components of effective curriculum that are aligned to learning experiences and outcomes using academic language of the sciences. Incorporates strategies for individual student needs based on diverse backgrounds, prior experiences, and language to deliver differentiated instruction and teaches students to set learning goals. Develop strategies to engage students
Prerequisites: junior/senior status, 9 units in Psychology and majors interested in cognitive psychology and its applications. Understand strategies to communicate confidential student data and progress following ethical and legal protocols. Prerequisite: Admission to the Teacher Education Program.
Same as L12 Educ 415
Credit 3 units. A&S IQ: NSM Art: NSM

U08 Educ 417 Curriculum and Instruction in Mathematics
Mathematics curriculum in the secondary school, with emphasis on modern developments in organization of mathematics. Analysis of methods of instruction and evaluation in teaching mathematics. Prerequisite: admission to teacher education program.
Same as L12 Educ 417
Credit 3 units. A&S IQ: NSM Art: NSM

U08 Educ 418 Curriculum and Instruction in Social Studies
Goals of general education in social studies and their relationship to the nature of knowledge in the social sciences. Introduction to the nature of thinking and its relationship to pedagogy and teaching materials. Prerequisite: admission to teacher education program. Secondary teacher education majors are required to take three credit hours during the year in which student teaching is completed.
Same as L12 Educ 418
Credit 3 units. A&S IQ: SSC EN: S

U08 Educ 4210 Creating Video Documentaries
This course explores the tools and techniques of creating video documentaries. We begin by learning production skills, including camerawork, story development, and digital editing. Working individually or in teams, students will then develop, shoot, and edit a short documentary on a topic of their choice. We also explore concepts of media literacy to help students better understand and navigate the media worlds around them. No previous experience is required. The course is designed to provide students with all of the skills necessary to produce a finished video. The semester culminates with a public screening of student work.
Credit 3 units.

U08 Educ 4302 Cognitive Psychology Applied to Education
This course is intended to cover topics in the cognitive psychology of human memory, conceptual learning, and comprehension with special focus on areas, theory, and research that have potential application to education. Thus, the course will provide selective coverage of theoretical and empirical work in cognitive psychology that provides potential to inform and improve educational practice. The applicability of these themes will be explicitly developed and evaluated through the primary research literature using educationally oriented experimental paradigms. The course is expected to be of interest and benefit to education majors and to psychology majors interested in cognitive psychology and its applications.
Prerequisites: junior/senior status, 9 units in Psychology and Psych 100B or junior/senior status, 9 units in Education and Psych 100B.

U08 Educ 4441 Applied Behavior Analysis: Research Methods and Evaluation
This course focuses on research design and methodology in behavior analytic research, with a focus on single-subject experimental designs. Various behavior-assessment and behavior-intervention evaluation strategies will be examined. In
addition, the course explores techniques for direct observation, and measurement of behavior, as well as methods of summarizing data, data analyses, and the ethics of research. Prerequisite: ABA I: Basic Principles of Behavior.
Same as U09 Psych 446
Credit 3 units.

U08 Educ 4491 Applied Behavior Analysis Practicum
This practicum provides experience in applied behavior analysis and is designed for individuals who intend to pursue certification through the Behavior Analysis Certification Board (BCBA) examination at the Associate level (Board Certified Associate Behavior Analyst: BCABA). Students will work in community-based agencies and be supervised by the community agency and the Practicum faculty. Prerequisites: admission to the Washington University Applied Behavior Analysis Certificate Program; and ABA I: Basic Principles of Behavior; and ABA II: Procedures for Behavior Change; and permission of instructor. Email (aba4kds@yahoo.com).
Same as U09 Psych 449
Credit 2 units.

U08 Educ 453B Sociology of Education
This course provides an overview of sociological theory and research on education in contemporary U.S. society. Drawing from sociological perspectives, it covers the implications of schools and schooling for social inequality, mobility, and group relations. It examines major theoretical perspectives on the purpose and social organization of mass education in the United States, and topics related to the organization and function of schools, access to educational resources, and group disparities in school experiences and outcomes.
Same as L12 Educ 453B
Credit 3 units. A&S IQ: SSC, SC, SD Arch: SSC Art: SSC BU: BA, ETH EN: S

U08 Educ 4580 Media Literacy for In-Service Teachers
This course allows in-service teachers to develop a technological foundation in video production (videography), post-production (digital editing), and challenge them to produce a short documentary as a final project. At the end of the semester, students screen their work in a public forum and participate in a peer evaluation workshop. The course also explores strategies to integrate media education into the K-12 curriculum.
Credit 3 units.

U08 Educ 4661 Second Language Acquisition
There are many ways in which a second language can be learned: from infancy as the child of bilingual parents, or later through formal instruction, immersion in a new culture, or in a particular work or social situation. This class is an inquiry into the processes by which acquisition occurs. Topics include the nature of language learning within the scope of other types of human learning; the relationship between first and second language acquisition; the role of linguistic, cognitive, and sociocultural factors; insights gained from analyzing learners’ errors; key concepts such as interlanguage and communicative competence; bilingualism; the optimal age for second language acquisition; and a critical appraisal of different theories of second language acquisition. Both theoretical and instructional implications of second language acquisition research are considered. This course can be used toward certification in TESOL and is a required course for the Graduate Certificate in Language Instruction. Prerequisite: Ling 170D or equivalent is recommended, especially for undergraduates, but is not required.
Same as L44 Ling 466
Credit 3 units. A&S IQ: HUM

U08 Educ 4681 Teaching Reading in the Elementary School
This course, emphasizing emergent literacy and children’s literature, is the first in a sequence of three courses on teaching reading and writing. The purposes of this course are to survey children’s acquisition of oral and written language from an emergent literacy perspective, to focus on methods of teaching beginning reading, to develop uses of children’s literature in a reading program. Offered fall semester.
Same as L12 Educ 4681
Credit 3 units. A&S IQ: HUM Art: HUM

U08 Educ 4691 Second Language Reading and Writing: Theory, Research, and Practice
This course, taught in English, extends issues in second language literacy beyond pedagogy by examining the wide range of theoretical and research issues, both historical and current. Literacy acquisition among second language learners involves a number of variables including both cognitive and social factors. Topics to be discussed in class include literacy and social power, universal cognitive operations, individual learner differences, text types and literary forms, and the extent to which reading and writing are interrelated. Students will discuss how to bridge research and practice, and they will create reading and writing activities driven by theory and empirical investigations. This course is a required course for the undergraduate minor in applied linguistics and an elective for the Graduate Certificate in Language Instruction. This course carries the Social and Behavioral Sciences attribute.
Same as L38 Span 4691
Credit 3 units. A&S IQ: SSC EN: S

U08 Educ 4701 History of the English Language
Concepts and methods of linguistic study: comparative, historical, and descriptive. Application of methods to selected problems in the history of English. Contrastive analysis of excerpts from Old, Middle, and later English; sounds, meanings, syntax, and styles.
Same as L14 E Lit 472
Credit 3 units. A&S IQ: HUM Art: HUM EN: H

U08 Educ 4731 Elementary School Mathematics
Fundamental concepts, properties, operations, and application of mathematics related to the systems of whole numbers, integers, rational numbers, and real numbers. Also included are measurement, simple geometry, probability, and logical reasoning. Designed to develop effective teaching strategies and approaches to curriculum development in mathematics. Addresses components of effective curriculum that are aligned to learning experiences and outcomes using academic language of mathematics. Incorporates strategies for individual student needs based on diverse backgrounds, prior experiences, and language to deliver differentiated instruction and teaches students to set learning goals. Develop strategies to engage students in the methods of inquiry and research with interdisciplinary approaches where appropriate. Learn researched-based models of critical thinking and problem-solving, including various instructional strategies and technology.
to support student engagement in higher level thinking skills. Use formal and informal assessments to design instruction and improve learning activities followed by assessment analysis to determine effect of class instruction on individual and whole class learning. Understand strategies to communicate confidential student data and progress following ethical and legal protocols. Prerequisite: Admission to the Teacher Education Program
Same as L12 Educ 4731
Credit 3 units. A&S IQ: NSM Arch: NSM Art: NSM

U08 Educ 4771 Arts and Aesthetics: A Means of Communication
Methods and materials for integrating the arts and aesthetics into the elementary classroom. Emphasis on art, music, and oral communication as well as curricula in movement. Prerequisite: admission to teacher education program, or permission of instructor. Offered spring semester.
Same as L12 Educ 4771
Credit 3 units. A&S IQ: HUM Arch: HUM Art: CPSC, HUM EN: H

U08 Educ 4821 The Teaching-Learning Process in the Secondary School
Secondary teacher education majors are required to take this 3 credit hour teacher-learning course during the spring semester in which student teaching is completed. The course focuses on the study, practice, and analysis of generic teaching strategies and skills needed to meet the needs of all students. Topics include classroom management, lesson planning, instructional and ethical decision making, and strategies for presenting clear explanations, asking effective questions, conducting productive discussions, reaching students with different learning styles/abilities/cultural backgrounds, and using cooperative learning groups.
Same as L12 Educ 4821
Credit 3 units. A&S IQ: SSC, WI Arch: SSC Art: SSC EN: S

U08 Educ 4831 The Teaching-Learning Process in the Elementary School
Focus on four broad areas: self-awareness and human relations; instructional and behavioral management strategies; development of curriculum and analysis of instruction; and social, political, and legal issues affecting the classroom. Topics include: teacher-pupil relationships, assessment of pupil progress, curriculum development, instructional technology, and school organization. Course discussion and study further develop knowledge in a variety of areas that are experienced during student teaching such as the refinement of pedagogy strategies and skills; and the Missouri Educator Evaluation System (MEES) for certification; understanding diverse cultural perspectives of English language learners and how to select appropriate strategies for addressing individual needs in meeting curriculum objectives; incorporating strategies for individual student needs based on diverse backgrounds and prior experiences to deliver differentiated instruction; creating a positive learning environment through effective classroom management using strategies based on research and pedagogically sound techniques; developing reflective practices to improve teaching while understanding the importance of utilizing professional learning opportunities in school districts and professional organizations; understanding the importance of communication, professional relationships, and collaboration with teachers, administrators, families, and the community; and, understanding the nature of professional, ethical, behavior and the need to adhere to district policies and school procedures. Prerequisite: Admission to the teacher education program. Concurrent registration in Educ 470 and 4911.
Same as L12 Educ 4831
Credit 3 units. A&S IQ: SSC WI Art: SSC EN: S

U08 Educ 4841 Elementary Methods Field Experience
Application and analysis of specific content area methods strategies in an elementary school classroom. PREREQUISITE: Admission to teacher education program. Elementary teacher education majors are required to take this course during the spring semester before the year in which student teaching is completed. Offered Spring semester.
Same as L12 Educ 4841
Credit 2 units. A&S IQ: SSC Art: SSC

U08 Educ 4843 Field Experience Seminar
This course guides students through a field experience in middle or secondary public school. Fifty hours of observation are required for each student, which involve observing and documenting classroom environment characteristics, professional teacher behaviors, and student behaviors; working with students individually and/or in small groups; preparing and teaching a lesson; and learning classroom technologies such as SMART Board and digital video recording and editing. Course topics, observation, and discussion include: understanding diverse cultural perspectives of English language learners and how to select appropriate strategies for addressing individual needs in meeting curriculum objectives; incorporating strategies for individual student needs based on diverse backgrounds and prior experiences to deliver differentiated instruction; creating a positive learning environment through effective classroom management using strategies based on research and pedagogically sound techniques; developing reflective practices to improve teaching while understanding the importance of utilizing professional learning opportunities in school districts and professional organizations; understanding importance of communication, professional relationships, and collaboration with teachers, administrators, families, and the community as well as the nature of professional, ethical, and legal behavior and the need to adhere to district policies and school procedures. Prerequisite: Admission to the Teacher Education Program. Concurrent registration required in one of the following Educ 413, 414, 415, 417, 418.
Same as L12 Educ 4843
Credit 3 units. A&S IQ: SSC

U08 Educ 4891 Education and Public Policy in the United States
This course takes a triangulated approach to the field of public policy as it relates to education and social problems. First, the course emphasizes theories of public policy that frame the field of policy studies. Major questions extending from this course feature include: What is public policy, policy behavior, its defining processes/features and what social function does it serve? Second, the course emphasizes the skills related to the exercise of policy analysis. These skills include the crafting of technical documents within the field of public policy (e.g., a policy brief) and the application of scientific methods to the exploration of social problems/governmental actions. Likely issues related to this course feature include the use of scientific knowledge in political arenas, engagement with stakeholders and the intended/unintended consequences of policy science
to political decision-making. Third, this course simulates the policymaking context through students' participation in mock congressional testimonies. These focal areas will become central to an understanding of four social concerns: school desegregation following the Brown decisions; affirmative action in higher education; Head Start programs; and/or the ESEA Act of 1965, also known as No Child Left Behind. Educational opportunity, achievement inequality and social change will be the primary interests that link these course features.

Same as L12 Educ 489  
Credit 3 units. A&S IQ: SSC Art; SSC EN: S UColl: ACS

### U08 Educ 4911 Student Teaching in the Elementary School

Supervised teaching experience. Group meetings and individual conferences. Emphasis on integration of theory/practice and reflection on teaching. Prerequisite: Admission to the Teacher Education Program. Elementary teacher education students enroll for 8 credits. Graduate students must register for Satisfactory/Unsatisfactory and Undergraduates must register for Pass/Fail. Secondary teacher education students enroll for 8 credits during the spring semester.

Same as L12 Educ 4911  
Credit variable, maximum 8 units. A&S IQ: SSC Art; SSC EN: S

### U08 Educ 492 Student Teaching in the Secondary School

Supervised teaching experience. Group meetings and individual conferences. Emphasis on integration of theory/practice and reflection on teaching through videotape analysis. Prerequisite: admission to teacher education program. Graduate students must register for Satisfactory/Unsatisfactory and undergraduates must register for Pass/Fail. Secondary teacher education students enroll for 8 credits during the spring semester.

Same as L12 Educ 492  
Credit variable, maximum 8 units. A&S IQ: SSC Arch; SSC Art; SSC EN: S

### U08 Educ 494 Student Teaching in K-12

Supervised teaching experience. Group meetings and individual conferences. Prerequisite: admission to teacher education program. Credit No Credit only. K-12 teacher education students enroll for 8 credits.

Same as L12 Educ 494  
Credit variable, maximum 8 units. A&S IQ: SSC Arch; SSC Art; SSC EN: S

### U08 Educ 4952 Middle School Curriculum and Instruction

Building on knowledge of the middle level child and the ways in which middle schools are organized to meet the needs of middle level children (covered in Ed 4951), this course explores the learning styles and attributes of middle school students and examines instructional theory, methods and materials appropriate to grades 5-9. In addition, portions of this course will be devoted to specific content field methodology subdivided into English/language arts and social studies or science and math. The English/social studies and science/math sessions will be held concurrently and students will attend the session appropriate to their content major or minors. Interdisciplinary team teaching will be modeled and featured in these sessions. Features a required practicum experience. Prerequisite: Admission to teacher education program.

Same as L12 Educ 4952  
Credit 3 units. A&S IQ: SSC Art; SSC EN: S

### U08 Educ 500 Independent Study

Permission of instructor. Permission to enroll given in McMillan 215. Credit to be determined in each case. Maximum 6 credit units. Credit variable, maximum 6 units.

### U08 Educ 503 Foundations of Educational Research

An introduction to the basic concepts, philosophies, and techniques of research. The first portion of the course introduces the various kinds of methodologies used in education, including an analysis of the strengths, weaknesses, and limitations of each. The last portion of the course is devoted to the techniques used in investigating a topic of relevance to the students. Prerequisite: graduate standing or permission of instructor.

Same as L12 Educ 503  
Credit 3 units.

### U08 Educ 511 Child Development

This course serves as an introduction to developmental theory and research methods by highlighting the various processes (including biological and sociocultural forces) that influence human psychological change. Emphasis is given to normative social-emotional and cognitive development in childhood, using current empirical studies as the basis for student exploration, discussion, and debate.

Same as L12 Educ 512  
Credit 3 units.

### U08 Educ 5125 Advanced Teaching Methods: Elementary

In this course, students will continue to refine their vision for high-quality instruction in an elementary language arts and mathematics classroom. With regard to language arts, students will build upon their understanding of best practices in elementary literacy by designing the structure for a balanced literacy block in their classrooms. These literacy blocks include instructional time devoted to explicit phonics instruction, shared reading, guided reading, read-aloud instruction, and vocabulary instruction. Students will also focus on writing instruction, and they will implement writing mini-lessons and student conferences in their classrooms. In the area of mathematics, this course will build on students' understanding of effective mathematics instruction and their knowledge of both direct instruction and inquiry-based approaches to learning. Students will explore effective instructional strategies through the lens of content, with a core focus in basic operations (addition, subtraction, multiplication, and division); geometry, fractions, and measurement; and problem-solving, algebra, and graphing. By analyzing instruction through the lens of specific mathematical concepts, students will have the opportunity to design lessons that focus on the connections between mathematical content as well as the standards for mathematical practice. Students must have instructor approval to register.

Credit 3 units. UColl: OLI

### U08 Educ 5126 Advanced Teaching Methods: Secondary English/Language Arts

In this course, students will continue to refine their vision for high-quality English/language arts instruction in a secondary classroom. This course will build upon students' understanding of effective novel studies and writing units by focusing on the fundamentals of close reading, word study, embedded nonfiction, and "writing for reading" strategies. Sophisticated discussions are one of the hallmarks of advanced practice in ELA classrooms. Middle and high school students must be able
to fluently use academic language and to internalize habits of discussion. This course will also focus on the role of discussion in an ELA classroom, and students will implement multiple discussion formats, including Socratic Seminars and Literature Circles. Students in this course will revisit the concept of rigor in a secondary ELA classroom by discussing the importance of text selection, studying text attributes and leveling systems, and analyzing the text selections embedded in their school's curriculum. Students must have instructor approval to register. Credit 3 units.

U08 Edu 5127 Advanced Teaching Methods: Secondary Mathematics
In this course, students will continue to refine their vision for high-quality mathematics instruction in a secondary classroom. Students will revisit the fundamental design elements present in inquiry-based lessons, focusing on the development of their students' conceptual understandings. The course will also focus on the importance of computational and procedural fluency, and students will create a backwards plan that allows for daily fluency practice within their classrooms. Moving beyond fundamental lesson planning and assessment structures, students in this course will learn specific strategies to develop and assess their students' problem-solving skills and abilities and to implement effective discourse in their mathematics classrooms. Students will design instructional activities that allow their students to explore and discuss challenging problems and tasks through structures such as problem-solving seminars and performance-based assessments. Students must have instructor approval to register. Credit 3 units. UColl: OHL

U08 Edu 5128 Advanced Teaching Methods: Secondary Science
In this course, students will continue to refine their vision for high-quality science instruction in a secondary classroom. Moving beyond fundamental lesson planning and assessment structures, students in this course will learn specific strategies to develop and assess their students' problem-solving skills and abilities and to implement effective discourse in their science classrooms. Students will design instructional activities that allow their students to explore and discuss challenging problems and tasks through structures such as problem-solving seminars and performance-based assessments. Students must have instructor approval to register. Credit 3 units. UColl: OHL

U08 Edu 5140 MATL Capstone Seminar I
The first semester of the year-long Capstone course will focus on the foundations of building a goal-driven classroom. When the school year begins, students will embark upon the important work of getting to know their students and their school setting. Building on their knowledge of data-driven instruction, students will use the information gained about their teaching placement and their students in order to set ambitious goals both for their classroom as a whole and for individual students. Students will also use investment and engagement strategies to launch their vision and goals with their students. Throughout the semester, students will acquire new skills related to data analysis and remediation. Students will be asked to develop a classroom vision, academic and social-emotional goals, systems to track and share progress, and a classroom management and investment plan. An important component of the Capstone course will be one-on-one instructional coaching. The Capstone coach will support each student as they work to apply the content of the course to their individual schools and classrooms. The coaching cycle will consist of a classroom observation, a coaching conversation, and follow-up action steps, and this will occur on a biweekly basis. Prerequisite: instructor approval. Credit 3 units.

U08 Edu 5141 MATL Capstone Seminar II
The MATL Capstone Seminar will be taught over the course of two semesters. In the spring, students will begin drafting their Master's Capstone. Students will curate a Capstone portfolio, displaying their best work from the prior two years of teaching. Students will also report on their students' final achievements and socioemotional growth results. In sum, the final Capstone will consist of the Capstone portfolio, film of an outstanding lesson, the presentation of a data narrative, and the delivery of an oral defense. For the oral defense, students will present and defend their K-12 students' growth and achievement data as well as key learnings from their residency and master's course work to faculty members and guests. Prerequisite: instructor approval. Credit 1.5 units.

U08 Edu 515 Continuing the Portfolio Process
Seminar format used to facilitate continuing portfolio development. Emphasis on making connections between university course work and individual teaching practice. Ongoing professional dialogue with peers and mentors provides direction and collegial support as students use the portfolio process to construct meaning out of their teaching experience and provide a clearer vision of their growth and development as a teacher. Prerequisite: Creating a Teaching Portfolio. Credit 1 unit.

U08 Edu 590 Graduate Independent Study
Prerequisite: permission of instructor. Credit variable, maximum 6 units.

U08 Edu 5999 Practicum in Teaching and Learning
For current students admitted to the Master of Arts in Teaching and Learning. Requires concurrent enrollment.

U08 Edu 6001 Topics in Education: Hands-On Science K-8: Electricity and Magnetism
Laboratory experiences, discussion and lectures designed to prepare teachers to implement or strengthen hands-on science teaching in grades K-8. Inquiry activities illustrating electrical and magnetic principles will be selected in congruence with the National Science Education Standards and the Missouri Show-Me Standards. Prerequisite: Permission of instructor; intended for in-service teachers. Credit 3 units.

U08 Edu 6002 Topics in Education: Hands-on Science K-8: Life Cycles and Heredity
Laboratory experiences, discussion and lectures designed to prepare teachers to implement or strengthen hands-on science teaching in grades K-8. Inquiry activities illustrating the sexual and asexual life cycles of plants, animals, fungi, and microbes will be selected in congruence with the National Science Education Standards and Missouri Show-Me Standards. Prerequisite: Permission of instructor; intended for in-service teachers.
U08 Educ 6005 Scientific Inquiry for the Classroom Teacher
An inquiry-based course for practicing teachers in the elementary and middle school, grades K-8. Teachers will strengthen their conception of inquiry-based teaching as they learn to create a culture of inquiry in their classroom to nourish 21st century learners through STEM. Teachers will learn how to incorporate thinking routines as they encourage students to explain phenomena and design solutions to real-world problems. Teachers will learn strategies for encouraging collaboration and active learning. The continuum of inquiry will be explored as teachers learn how to move to student-centered learning that encourages lifelong learning through inquiry. A school-based implementation project will be required. Topics to vary by semester. Prerequisite: permission of instructor. For STEM Teacher Quality Institute students only.
Credit 3 units. UColl: OLH, OLI

U08 Educ 6006 Science Inquiry for Educators
Laboratory experiences and discussions designed to help teachers use inquiry methods in the K-8 classroom. Science themes, structured in accordance with national and state educational standards, will be variable by semester. Classroom project required. Course is intended for in-service teachers. Permission of instructor required.
Credit 3 units.

U08 Educ 6007 Advanced Scientific Inquiry for Educators
This course is designed to prepare teachers to strengthen skills associated with the delivery of a successful inquiry-based science curriculum in the K-8 classroom. Through laboratory experiences and discussions, teachers will work on developing questioning strategies, sequencing activities to support the various experiential levels of students, and developing relevant lessons and activities from student questions. Classroom project required. Course is intended for in-service teachers. Prerequisite: permission of instructor.
Credit 3 units.

U08 Educ 6008 Teaching the Process of Scientific Investigation
This course is intended for in-service teachers. Participants will engage in the process of scientific investigation while developing hands-on lessons for their students that support their ability to understand the nature of the scientific process of problem solving. The focus will be on pedagogical strategies that help foster independent investigation among students. Classroom project is required. Prerequisite: permission of instructor.
Credit variable, maximum 3 units. UColl: OLH

U08 Educ 6009 Hands-On Science K-8: Matter and Energy
Laboratory experiences, discussion and lectures designed to prepare teachers to implement or strengthen hands-on science teaching in the grades K-8. Inquiry activities illustrating basic matter, and energy and chemistry concepts will be selected in congruence with the National Science Education Standards and the Missouri Show-Me Standards. Prerequisites: permission of instructor; intended for in-service teachers.
Credit 3 units.

U08 Educ 6010 Hands-On Science K-8: Mathematics Concepts
Discussion intensive and lecture course designed to prepare teachers to implement or strengthen hands-on mathematics teaching in grades K-8. Inquiry activities illustrating numeration, rational numbers, and ratios will be selected in congruence with the NCTM Principles and Standards for School Mathematics, the National Science Education Standards, and the Missouri Show-Me Standards. Prerequisite: permission of instructor; intended for in-service teachers.
Credit 3 units.

Laboratory experiences, discussion and lectures designed to prepare teachers to implement or strengthen hands-on science teaching in grades K-8. Inquiry activities illustrating planetary motion, tides, lunar phases, constellations, comets, terrestrial planets, gas giants, plate tectonics, volcanoes, and earthquakes will be selected in congruence with the National Science Education Standards and Missouri Show-Me Standards. Registration fee collected first night of class. Prerequisite: permission of instructor; intended for in-service teachers.
Credit 3 units.

U08 Educ 6013 Scientific Inquiry: Advanced Pedagogy for Educators
This course is designed to prepare teachers to strengthen skills associated with the delivery of a successful inquiry-based science curriculum in the K-8 classroom. Through laboratory experiences and discussions, teachers will work on a variety of pedagogical skills including developing questioning strategies and sequencing activities to support the various experiential levels of students. Participants will conduct an implementation project at their school or learning site. Scientific themes, structured in accordance with national and state standards, vary by semester.
Credit 1.5 units. UColl: OLH, OLI

U08 Educ 6015 Hands-On Science K-8: Earth Systems
Laboratory experiences, discussion, and lectures designed to prepare teachers to implement or strengthen hands-on science teaching in grades K-8. Inquiry activities involving the water cycle, erosion, the earth's composition, weather patterns, geology, and natural resources will be selected in congruence with the National Science Education Standards and the Missouri Show-Me Standards. Registration fee collected the first night of class. Prerequisite: permission of instructor; intended for in-service teachers.
Credit variable, maximum 3 units.

U08 Educ 6018 Hands-On Science K-8: Diversity of Life
This course includes laboratory experiences, discussion, exploration of different teaching strategies, and lectures designed to prepare teachers to implement or strengthen hands-on science teaching in grades K-8. The course topics include the taxonomy and characteristics of the major groups of protists, plants, and animals as well as issues affecting biodiversity (genetic, species, and ecosystem diversity). Inquiry activities that illustrate the content are selected in congruence with the
National Science Education Standards and Missouri Show-Me Standards. A registration fee is collected the first night of class. Prerequisite: permission of instructor; intended for in-service teachers, grades K-8.
Credit 3 units.

U08 Educ 6019 Researched Practices in Math Instruction
A pedagogy course for practicing teachers in the elementary and middle school, grades K-8. The course is an introduction to research-proven practices in mathematics, supported by math content. These pedagogical practices include the use of student-work to inform conceptual development, the use of small-group instruction as situated in a diverse set of classroom organizational patterns, approaches to conceptual change and conceptual development, uses of formative assessment, direct instruction, etc. For any particular workshop, a set of approaches and the research associated with it are presented in relation to standards-based content topics. Participants are engaged in developing their math content and pedagogical skills with a primary emphasis on the learning of high quality classroom practices. Participants conduct an implementation project at their school or learning site to ensure that what they learn is effectively applied within their own classroom setting.
Credit 3 units. UColl: OLH

U08 Educ 6022 Improving Content and Instruction: Algebra
This course will focus on topics in Algebra, focusing on topics covered in the national framework standards document, grades 4-9. Prerequisite: Must be a practicing teacher and have approval of the instructor to enroll.
Credit 3 units. UColl: OLH

U08 Educ 6023 Scientific Inquiry: Advanced Pedagogy for Educators, Part II
This course is designed to prepare teachers to strengthen skills associated with the delivery of a successful inquiry-based science curriculum in the K-8 classroom. Through laboratory experiences and discussions, teachers will work on a variety of pedagogical skills including developing questioning strategies and sequencing activities to support the various experiential levels of students. Participants will conduct an implementation project at their school or learning site. Scientific themes, structured in accordance with national and state standards, vary by semester. This is Part II of a two-part series.
Credit 1.5 units.

U08 Educ 6024 Leadership In Scientific Inquiry
In this course, students review literature related to science teacher leadership. Students conduct an implementation project in which they direct a test of change, a defined professional development program, or another leadership experience targeting a specific audience. Students read and discuss different models for inquiry-driven change, implement an innovation, collect and analyze data, and determine impact.
Credit 3 units.

U08 Educ 6025 Reading and Writing in the Science Content Area
This course will study the theoretical frameworks underlying literacy (reading and writing) instruction in the science classroom. Teachers in this course will learn research-based instructional methodologies to support disciplinary literacy and content literacy practices. Teachers will gain an understanding of how explicit literacy instruction connects with and supports three-dimensional curriculum and instruction. Teachers will use trade books, implement strategies to teach the comprehension of scientific text, and explore ways to support student writing in the science classroom, including using graphic organizers, note-taking strategies, and constructing written explanations and lab reports. Teachers will apply their learning to develop unit plans and lesson plans that strategically incorporate literacy strategies to support student learning in the science classroom. A class project is required.
Credit 3 units.

U08 Educ 6026 Improving Content and Instruction: Probability and Statistics (K-8)
Students will learn how to analyze the progression of learning that students encounter in middle and high school and how to engage students in probability and statistical thinking using authentic learning opportunities. The course will give teachers the opportunity to learn and practice research-based strategies for teaching these concepts and skills to students.
Credit 3 units.

U08 Educ 6027 Equity in the Math Classroom
Students will consider ways to embed equitable practices in the math classroom by studying practices that support access to math knowledge and thinking for all students. They will discuss the historical context that has led to inequality in the American classroom and practice embedding inclusive practices into math teaching in service of closing the achievement gap in our schools, especially for girls and students of color.
Credit 3 units.

U08 Educ 6028 Computational Thinking Across the Curriculum
This course focuses on applying computational thinking across disciplines in grades K-8. Teachers will develop their understanding of the main concepts and skills involved in computational thinking and learn how to incorporate these into their curriculum across domains. A classroom implementation project is required.
Credit 3 units.

U08 Educ 6029 Educational Technology
The course will emphasize how to use technology in meaningful ways. Teachers in this course will critically evaluate the purpose, potential privacy concerns, and cognitive barriers of ed-tech hardware and software. They will learn how to use educational technology to create opportunities for deeper learning. A classroom project is required.
Credit 3 units.

U08 Educ 6030 Engineering Across the Curriculum
This course is designed to introduce teachers to how engineering concepts can be used to engage students in learning via interdisciplinary lessons. Teachers will engage in and develop learning experiences that utilize different resources to engineer solutions. Resources may include devices, robots, software, and materials easily found in classrooms. A classroom implementation project is required.
Credit 3 units.
U08 Educ 6031 Introduction to Computer Science Teaching
This course is designed to introduce teachers to the fundamental concepts and practices of computer science (CS). Teachers will be engaged in experiences designed to provide authentic, meaningful experiences with both CS topics and pedagogy. Current Missouri CS Standards and the K-12 CS Framework will be used as a framework for discussion. A classroom project is required.
Credit 3 units. UColl: OLH

U08 Educ 6100 Practical Strategies for Teachers to Effect Personal Change
This course features six 1-credit-unit sections that cover diverse topics. The course is designed for teachers who want to develop skills and knowledge that they can apply in their classrooms. The sections do not overlap; each is independent of the others. Teachers may choose to enroll in as few (one) or as many (up to six) topic sections as they desire, and they will receive 1 credit unit for each topic section they successfully complete. Students can enroll in more than one section at a time up to a maximum of six. For STEM Teacher Quality Institute participants only.
Credit 1 unit.