Education

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 that work to enhance the educator’s professional development in a particular area of focus.

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Degree Requirements

Master of Arts in Education–Instructional Process

Every MAEd–IP student must complete 13 credit hours of required core courses. The balance of the credits required to obtain the MAEd–IP (30 credits minimum) is composed of work within one of the three strands described. Requirements may differ for those students pursuing the Innovative Certification strand.

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

Program Core Course Work (13 credits)

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>Educ 4023</td>
<td>Second Language Acquisition &amp; Technology</td>
<td>3</td>
</tr>
<tr>
<td>Educ 4044</td>
<td>Video Microanalysis: Methods and Tools</td>
<td>3</td>
</tr>
<tr>
<td>Educ 4890</td>
<td>The Science and Politics of Testing in the United States</td>
<td>3</td>
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<tr>
<td>or Educ 4610</td>
<td>Introduction to Educational Tests and Measurements</td>
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<tr>
<td>Educ 516</td>
<td>MAEd Portfolio Presentation</td>
<td>1</td>
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<tr>
<td>Total Units</td>
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<td>10</td>
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Plus one Foundations of Education elective (3 credits), chosen from among the following:

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<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>U08 Educ 453B</td>
<td>Sociology of Education</td>
<td>3</td>
</tr>
<tr>
<td>Educ 462</td>
<td>Politics of Education</td>
<td>3</td>
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<tr>
<td>Or other relevant elective from Education, Social Work, Law, or Political Science (public policy concentration)</td>
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Strands of Study

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

Strand 1: Professional Development

(17 credits minimum)

If students select this strand of study, they will design a course of study, in conjunction with their adviser, 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 may include the following:

- Additional Foundations of Education electives
- Other elective courses from relevant areas

Strand 2: Elementary/Middle Science Education

(18 credits)

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

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<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tr>
<td>Bio 4002</td>
<td>Teaching the Science of Nature</td>
<td>3</td>
</tr>
<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 6003</td>
<td>Topics in Education: Hands-on Science K-8: Force and Motion</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6004</td>
<td>Topics in Education: Hands-on Science K-8: Biological Form and Function</td>
<td>3</td>
</tr>
<tr>
<td>Educ 6005</td>
<td>Scientific Inquiry for the Classroom Teacher</td>
<td>3</td>
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</table>
aspects and alternative interpretations of social interactions. Specifically we may look at facial expressions, direction of gaze, hand movements, body position, and use of material resources. Theoretical lens, this type of analysis will reveal fleeting communications that are not easily identified in real-time viewing. 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.
Principles of Behavior

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. Secondary teacher education majors are required to take 3 credit hours during the fall semester during the year in which student teaching is done.
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 3 credit hours during the year in which student teaching is done.
Same as L12 Educ 418
Credit 3 units. A&S IQ: SSC Art: 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.
Same as L12 Educ 4302
Credit 3 units. A&S IQ: SSC

U08 Educ 4411 Applied Behavior Analysis I: Basic Principles of Behavior
This course focuses on behavioral principles and procedures as related to the acquisition of new behavior and the modification of existing behavior. Topics to be covered include: reinforcement, punishment, extinction, discrimination training, generalization, shaping, classical conditioning, conditioned reinforcement, and schedules of reinforcement. Although the focus is on basic principles derived from laboratory research, applications of these principles to areas such as developmental disabilities (e.g., autism), academic skills, and oppositional behaviors are discussed. Philosophical and historical antecedents of behaviorism also are explored. This class is part of a sequence of courses that the Behavior Analyst Certification Board, Inc. has approved for eligibility to take the Board Certified Associate Behavior Analyst Examination.
Same as U09 Psych 444
Credit 3 units.

U08 Educ 4451 Teaching Writing in School Contexts
Writing teachers often know how to write well but less about the teaching of writing. To provide effective instruction in writing, teachers need, first of all, experiences with writing instruction and theoretical knowledge and how to apply them in classroom practices. The goals of this course are as follows: to provide opportunities for all teachers of English and language arts, to develop theoretical knowledge and skill as teachers of writing, to connect the practices of research and teaching, to encourage teachers to give their students multiple and varied experiences with writing, to assist teachers in learning to respond to students' writing and assess their progress as writers.
Same as L12 Educ 4451
Credit 3 units. A&S IQ: SSC

U08 Educ 4452 Applied Behavior Analysis II: Procedures for Behavior Change
This course focuses on the complex behavioral principles and on issues surrounding their application in the analysis and modification of behavior. In addition, students learn to identify behavior and environment relations that constitute behavioral deficits or excesses. Behavioral change procedures to be explored include: functional analysis, reinforcement, shaping, chaining, discrete trials, contingency contracting, reinforcement, and maintenance of behavior change. Ethical considerations are also addressed. This class is part of a sequence of courses that the Behavior Analyst Certification Board, Inc. has approved for eligibility to take the Board Certified Associate Behavior Analyst Examination. Prerequisite: U09-444.
Same as U09 Psych 445
Credit 3 units.

U08 Educ 446 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 (aba4kids@yahoo.com).
Same as U09 Psych 449
Credit 2 units.

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 462 Politics of Education
Politics is interpreted broadly to include not just government, but any situation in which people have to solve a problem or come to a decision. This course focuses on schools and the processes through which certain stories, identities, and practices are promoted, and others, not.
Same as L12 Educ 462
Credit 3 units. A&S IQ: SSC, SC, SD Art: SSC EN: S

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, WI Arch: SSC Art: 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: SSC, WI Arch: SSC Art: SSC EN: S

U08 Educ 4821 The Teaching-Learning Process in the Secondary School
The Teaching-Learning course that secondary teacher education majors are required to take during the spring semester in which student teaching is done. 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. Secondary teacher education majors are required to take 3 credit hours during the year when student teaching is done.
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, generic teaching and behavioral management strategies, analysis of instruction, social and political issues affecting the classroom. Topics include teacher-pupil relationships, evaluation of pupil progress, curriculum development, instructional technology, and school organization. Admission to Elementary Teacher Education program required. Elementary teacher education majors are required to take this course in the fall semester during the semester in which student teaching is done.
Same as L12 Educ 4831
Credit 3 units. A&S IQ: SSC, WI Arch: 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 done. 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. Students observe and document classroom environment characteristics, professional teacher behaviors, and student behaviors; work with students individually and/or in small groups; prepare and teach a lesson.
Same as L12 Educ 4843
Credit variable, maximum 3 units. A&S IQ: SSC

U08 Educ 4890 The Science and Politics of Testing in the United States
Why do tests permeate American society? Tests have been integral to the decision-making process in many venues of American culture (e.g., immigration opportunities, voting rights, college admissions, workforce considerations, special education placement, educational reform, and graduation requirements). The credibility of these decisions depends upon the claim that a particular test is a scientific instrument and relevant to the decision-making process. This claim is worthy of study. The purpose of this course is twofold. The first purpose is to examine how the nexus of science and politics influence testing practices in American society. The second purpose is to explore how testing practices influence the culture of schools, civil liberties, the work place, and public discourse about merit.
Same as L12 Educ 4891
Credit 3 units. A&S IQ: SSC, SD

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 through videotape analysis. Prerequisite: admission to elementary teacher education program and permission of director of teacher education. Graduate students must register for Satisfactory/Unsatisfactory and undergraduates must register for Pass/Fail. Elementary teacher education students enroll for 8 credits during the fall 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. Offered spring semester.
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
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.

U08 Educ 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 Educ 516 MAEd Portfolio Presentation
Using the "working" portfolio and conferring with mentors and instructors, students will reflect on portfolio process and prepare final MAEd presentation portfolio for evaluation. Prerequisite: Continuing the Portfolio Process.
Credit 1 unit.

U08 Educ 525 Diagnosis and Correction of Reading Disabilities
This course is the second of three courses on teaching reading and writing, with an emphasis on readers, texts, and assessment. The topics covered in this course include addressing issues related to the differences and disabilities that may occur in reading processes; evaluating students’ reading skills; analyzing texts for their use by readers; and designing
classroom reading activities that assist students with all kinds of material. Prerequisite: Educ 4681 or permission of instructor. 
Same as L12 Educ 525
Credit 3 units. EN: S

U08 Educ 5253 Instructional Interventions in Reading for Adolescents and English Language Learners
Education 5253 is the first of two courses designed to increase the ability of secondary school teacher candidates to support literacy development for middle and high school students. Strategies of instructional intervention will be taught, modeled and observed. The theoretical base of educational research for literacy intervention is at the core of understanding purpose, validity, and implementation of instructional intervention strategies. Additional purposes are to address differences among readers and texts and to understand methods of reading assessment for adolescents and the English Language Learner (ELL). The reading process, difficulties in reading and English language learning, instruction in reading beyond elementary education, and the role of the teacher in reading instruction and assessment will be important topics in this course. Prerequisite: admission to the Teacher Education program.
Same as L12 Educ 5253
Credit 3 units.

U08 Educ 5681 Reading in the Content Areas
This course will focus on reading comprehension, reading and writing in content areas, reading assessment, and reading curriculum evaluation. Prerequisite: admission to Teacher Education program or permission of director of Teacher Education.
Same as L12 Educ 5681
Credit 3 units.

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

U08 Educ 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 Educ 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.
Credit 3 units.

U08 Educ 6003 Scientific Inquiry for the Classroom Teacher
An inquiry-based science course for practicing teachers in the elementary and middle school, grades 1-8. Participants will be engaged in developing their science content and pedagogical skills. A school-based implementation project will be required. Topics to vary by semester. Prerequisite: permission of instructor.
Credit 3 units.

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.

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.

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 variable, maximum 6 units.

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 approval of the instructor. Credit 3 units.

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.