



**EARTH SCIENCE, GRADES 9-12**

EDUCATOR PREPARATION PROGRAM NAME <b>UNIVERSITY OF MISSOURI-KANSAS CITY</b>	EDUCATOR PREPARATION PROGRAM CODE <b>116117</b>
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**INSTRUCTIONS**

Please complete Educator Preparation Program (EPP) Name & EPP Code above.

**Certification Requirements:**

- Course Number – List the course number(s) for the course(s) or groups of competencies that align with the specific section of the requirements. It is possible to have more than one course or group listed.
- Course Title – List the course title(s) for the course(s) or groups of competencies that align with the specific section of the requirements. It is possible to have more than one course or group listed.
- Semester Hours – List the number of semester hours for each specific section. It is possible to use decimals (to the nearest tenth) to indicate partial use of a course to meet a requirement. The total number of semester hours must meet or exceed the minimum required number of semester hours.

Email the completed cover sheet, curriculum matrix, and advising/program information to [DESE.MoSPETransition@dese.mo.gov](mailto:DESE.MoSPETransition@dese.mo.gov) on or before the date established in the Transition Plan.

QUESTIONS: Contact Educator Preparation, 573-751-1668 or [DESE.MoSPETransition@dese.mo.gov](mailto:DESE.MoSPETransition@dese.mo.gov)

**A. Professional Requirements (Minimum of 26 semester hours)**

1. Content Planning and Delivery

	Course Number	Course Title	Semester Hours
a. Curriculum and Instructional Planning	TCH-ED 385 TCH-ED 435	Teaching and Learning with Technology Special Methods of Teaching Science in Middle and High Schools	1 1
b. Instructional Strategies and Techniques in Content Area Specialty	TCH-ED 435 TCH-ED 495	Special Methods of Teaching Science in Middle and High Schools Seminar – Science	1 1
c. Assessment, Student Data, and Data-Based Decision-Making	TCH-ED 315	Assessment and Data Literacy	2
d. Strategies for Content Literacy	EDRD 439, or EDRD 439	Language and Literacy across the Disciplines, or Content Area Reading And Language Development	3 (3)
e. Critical Thinking and Problem Solving	TCH-ED 385	Teaching and Learning with Technology	2
f. English Language Learning	TCH-ED 314	Cultural Diversity and Teaching English Language Learners	2

2. Individual Student Needs

	Course Number	Course Title	Semester Hours
a. Psychological Development of the Child and Adolescent	TCH-ED 420	Adolescent Development	3
b. Psychology/Education of the Exceptional Child	TCH-ED 404	Education of the Exceptional Child and Youth	3
c. Differentiated Learning	TCH-ED 438	Culturally Responsive Strategies for Teaching Diverse Learners	2
d. Classroom Management	TCH-ED 330, or TCH-ED 430	Analyzing Learning Environments in Urban Contexts, or Gateway to Teaching	2 (2)
e. Cultural Diversity	TCH-ED 438 TCH-ED 314 TCH-ED 330, or TCH-ED 430	Culturally Responsive Strategies for Teaching Diverse Learners Cultural Diversity and Teaching English Language Learners Analyzing Learning Environments in Urban Contexts, or Gateway to Teaching	1 1 1 (1)
f. Educational Psychology	TCH-ED 403	Educational Psychology	3

3. Schools and the Teaching Profession

	Course Number	Course Title	Semester Hours
a. Consultation and Collaboration	TCH-ED 5315	Assessment and Data Literacy	1

b. Legal/Ethical Aspects of Teaching	TCH-ED 5312	Legal and Ethical Aspects of Teaching	3
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4. Secondary Literacy (Minimum of six semester hours)			
	Course Number	Course Title	Semester Hours
a. Reading and Writing in the Content Area	EDRD 439, or EDRD 439	Language and Literacy Across the Disciplines, or Content Area Reading and Language Development	3 (3)
b. Instructional Interventions for Students with Reading Deficits	TCH-ED 463	Literacy Intervention Across the Disciplines	3
<b>Professional Requirements - Total Semester Hours</b>			<b>36</b>

B. Field and Clinical Experiences (Minimum of ten semester hours)			
	Course Number	Course Title	Semester Hours
1. Early Field Experiences (Minimum of one semester hour with a minimum of 30 clock hours)	TCH-ED 422	Practicum I – Middle and High School	1
2. Mid-Level Field Experiences (Minimum of one semester hour with a minimum of 45 clock hours)	TCH-ED 423	Practicum II – Middle and High School	1
	TCH-ED 424	Practicum III – Middle and High School	1
3. Culminating Clinical Experiences (Minimum of eight semester hours with a minimum of 12 weeks in one placement)	TCH-ED 437	Student Teaching in High School	9
<b>Field and Clinical Experiences - Total Semester Hours</b>			<b>12</b>

C. Earth Science Content Knowledge Area (Minimum of 35 semester hours)			
	Course Number	Course Title	Semester Hours
1. History/Philosophy of Science and Technology (three semester hours)	TCH-ED 470	Philosophy and History of Science and Technology	3
2. Earth Science Coursework – Minimum of 20 semester hours which must include:			
a. Astronomy	ASTR 150, or ASTR 155	Astronomy: Motions of the Cosmos, or Introduction to Astronomy: Interaction of Light and Matter in the Universe, or Equivalent with faculty approval	3 (3)
	ASTR 153L	Introductory Astronomy Laboratory, or Equivalent with faculty approval	2
b. Meteorology	GEOG 319, or GEOG 215	Descriptive and Synoptic Meteorology, or Introduction to Weather and Climate	4 (4)
c. Geology/Physical Geography	GEOLOGY 220	General Geology	3
d. Earth Science Electives		<b>Select two of the following Earth Science courses:</b>	<b>6 – 8</b>
	GEOG 203	Introduction to Geographic Information Systems	(4)
	GEOG 314	Principles of Geomorphology	(4)
	GEOG 319	Descriptive and Synoptic Meteorology	(4)
	GEOG 360	Principles of Biogeography	(4)
	GEOG 401	Advanced Geographic Information Science	(4)
	GEOG 402	Environmental Remote Sensing and Digital Image Analysis	(4)
	GEOG 404	Biogeography and Landscape Ecology	(3)
	GEOG 406	Global Environmental Change	(3)
	GEOG 442	Quaternary Environments	(3)
	GEOG 444	Spatial Data Analysis	(3)
	GEOG 448	Satellite Climatology	(4)
	GEOLOGY 312	Mineralogy	(4)
	GEOLOGY 313	Evolution and the Geologic Record	(4)
	GEOLOGY 314	Principles of Geomorphology	(4)
	GEOLOGY 342	Igneous and Metamorphic Petrology	(4)
	GEOLOGY 370R	Hydrogeology	(3)
	GEOLOGY 411	Mineral Deposits	(3)
	GEOLOGY 446	Petroleum Geology	(3)
	GEOLOGY 471	Tectonics	(3)
	GEOLOGY 472	Earthquake Geology	(3)
3. Additional Science Coursework – Minimum of 12 semester hours which must include:			
a. Chemistry	CHEM 211	General Chemistry I	4
	CHEM 211L	Experimental General Chemistry	1
b. Biology	BIOLOGY 108	General Biology I	3
	BIOLOGY 108L	General Biology I Laboratory	1
c. Physics	PHYS 210	General Physics I	4

d. Environmental Science	ENV-SCI 110R	Understanding the Earth	3
	ENV-SCI 110L	Understanding the Earth Laboratory	2
<b>Content Knowledge Area - Total Semester Hours</b>			<b>37 – 41</b>

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