



**PHYSICS GRADES 9-12 CURRICULUM MATRIX**

EDUCATOR PREPARATION PROGRAM NAME <b>UNIVERSITY OF CENTRAL MISSOURI</b>	EDUCATOR PREPARATION PROGRAM CODE <b>121121</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	EDFL 2100 STCH 4050	Introduction to the Teaching Profession Science Teaching Methods	0.5 0.5
b. Instructional Strategies and Techniques in Content Area Specialty	STCH 4050	Science Teaching Methods	1.5
c. Assessment, Student Data, and Data-Based Decision-Making	EDFL 2100 EDFL 4974	Introduction to the Teaching Profession Content Specific Assessment	1.0 1.0
d. Strategies for Content Literacy	STHC 4050 EDFL 4210	Science Teaching Methods Introduction to Content Area Literacy	1.0 0.5
e. Critical Thinking and Problem Solving	EDFL 2250 STCH 4080	Intro to ELL and Culturally Resp Pedagogy Science Learning and Literacy	0.5 1.0
f. English Language Learning	EDFL 2250 STCH 4010	Intro to ELL and Culturally Resp Pedagogy Exploring Firsthand Science Lessons	0.5 0.25

**2. Individual Student Needs**

	Course Number	Course Title	Semester Hours
a. Psychological Development of the Child and Adolescent	PSY 3220 -OR- PSY 2220 -OR- CFD 1220	Life-Span Development -OR- Child and Adolescent Psych Development -OR- Child & Adolescent Development	3.0
b. Psychology/Education of the Exceptional Child	EDSP 2100	Education of the Exceptional Child	1.5
c. Differentiated Learning	EDSP 2100 EDFL 2250 STCH 4010	Education of the Exceptional Child Intro to ELL and Culturally Resp Pedagogy Exploring Firsthand Science Lessons	1.0 0.5 0.5
d. Classroom Management	EDFL 4970 EDFL 4973	Secondary Teaching & Behavioral Mgmt Classroom Management in Content Areas	1.5 1.0
e. Cultural Diversity	EDFL 2250 STCH 4010	Intro to ELL and Culturally Resp Pedagogy Exploring Firsthand Science Lessons	0.5 0.25
f. Educational Psychology	EDFL 2240	Educational Psychology	3.0

**3. Schools and the Teaching Profession**

	Course Number	Course Title	Semester Hours
a. Consultation and Collaboration	EDFL 2100	Introduction to the Teaching Profession	1.0
b. Legal/Ethical Aspects of Teaching	EDFL 2100 EDSP 2100	Introduction to Teaching Profession Education of the Exceptional Child	0.5 0.5

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4. Secondary Literacy (Minimum of 6 semester hours)			
	Course Number	Course Title	Semester Hours
a. Reading and Writing in the Content Area	EDFL 4210	Introduction to Content Area Literacy	1.0
	EDFL 4212	Literacy in the Disciplines I	1.0
	STCH 4080	Science Learning and Literacy	2.0
b. Instructional Interventions for Students with Reading Deficits	EDFL 4210	Introduction to Content Area Literacy	1.0
	EDFL 4212	Literacy in the Disciplines I	1.0
	EDFL 4972	Literacy in the Disciplines II	2.0
<b>Professional Requirements - Total Semester Hours</b>			<b>31.5</b>
B. Field and Clinical Experiences (Minimum of 10 semester hours)			
	Course Number	Course Title	Semester Hours
1. Early Field Experiences (Minimum of 1 semester hour with a minimum of 30 clock hours)	FLDX 2150	Introductory Field Experience	1.0
2. Mid-Level Field Experiences (Minimum of 1 semester hour with a minimum of 45 clock hours)	FLDX 3000	Field Experience in content area	1.0
	FLDX 4970	Field Experience II in Content Area	1.0
3. Culminating Clinical Experiences (Minimum of 8 semester hours with a minimum of 12 weeks in 1 placement)	FLDX 4595	Student Teaching Secondary I	4.0
	FLDX 4468	Student Teaching Secondary II	4.0
<b>Field and Clinical Experiences - Total Semester Hours</b>			<b>11</b>
C. Physics Content Knowledge Area (Minimum of 35 semester hours)			
	Course Number	Course Title	Semester Hours
1. History/Philosophy of Science and Technology (3 semester hours)	STCH 3020	Science and Engineering Practices	3.0
2. Physics Coursework – Minimum of 20 semester hours which must include			
a. Mechanics	(Option 1) PHYS 2121 AND PHYS 2122  –OR  (Option 2)  PHYS 1101 PHYS 1102	University Physics I (5) AND  University Physics II (5)  – OR  College Physics I (4) AND College Physics II (4)	3.9 AND .6  - OR  3.2 AND 0.9
b. Electricity and Magnetism	(Option 1) PHYS 2122 – OR (Option 2) PHYS 1102	University Physics II (5)  – OR  College Physics II (4)	3.0  - OR  2.0
c. Heat, Sound, and Light	(Option 1) PHYS 2121 AND PHYS 2122 – OR (Option 2) PHYS 1101 AND PHYS 1102  (Both 1 + 2) PHYS 4411 – OR CHEM 4531  CHEM 1132	University Physics I (Heat, 5) AND University Physics II (Sound/Light, 5) – OR  College Physics I (Heat/Sound, 4) AND College Physics II (Light, 4)  Thermodynamics (Heat, 3) – OR Physical Chemistry: Thermodynamics & Kinetics (Heat, 4)  General Chemistry II	1.1 AND 1.4 - OR  0.8 AND 1.1  3.0 - OR 4.0  1.0
d. Atomic or Modern Physics	(Option 1) PHYS 2121 AND PHYS 2122  –OR(Option 2)  PHYS 1101 PHYS 1102	University Physics I (5) AND  University Physics II (5)  – OR  College Physics I (4) AND College Physics II (4)	3.9 AND .6  - OR  3.2 AND 0.9

e. Physics Electives	PHYS 3020 EASC 3112	Special Topics in Physics: Astronomy (3), or Astronomy (3)	Select 4.0 - 6.0
	PHYS 3211	Analytical Mechanics I (3)	
	PHYS 3512 AND PHYS 3080	Modern Physics II (3) AND Advanced Physics Lab (1)	
	PHYS 3611 AND PHYS 3080	Optics AND Advanced Physics Lab (1)	
	PHYS 4312 PHYS 4512	Electricity and Magnetism (3) Intro to Quantum Mechanics (3)	
3. Additional Science Coursework – Minimum of 12 semester hours which must include			
a. Chemistry	CHEM 1131 CHEM 1132	General Chemistry I General Chemistry II	5.0 4.0
b. Biology	BIOL 1112  – OR  BIOL 1110	Animal Biology  –OR  Principles of Biology	4.0  – OR  3.0
c. Earth Science	EASC/GEOS 1004  - OR  EASC/GEOS 1114/ GEOG 1114	Introduction to Geology  - OR  Weather & Climate	4.0
d. Environmental Science	BIOL 1005 -OR- BIOL 1003	Introduction to Environmental Science -OR- Introduction to the Sciences: Ecology	3.0  3.0
<b>Content Knowledge Area - Total Semester Hours</b>			<b>39.1-48.5</b>