MISSOURI DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION
OFFICE OF EDUCATOR QUALITY – EDUCATOR PREPARATION

PHYSICS, GRADES 9-12

EDUCATOR PREPARATION PROGRAM NAME	EDUCATOR PREPARATION PROGRAM CODE
WASHINGTON UNIVERSITY	300342

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 on or before the date established in the Transition Plan.

QUESTIONS: Contact Educator Preparation, 573-751-1668 or 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	ED 415	- Curriculum and Instruction in Science	3 (.3)
b. Instructional Strategies and Techniques in Content Area Specialty	ED 415	- Curriculum and Instruction in Science	(.2)
c. Assessment, Student Data, and Data-Based Decision-Making	ED 415 ED 408 ED 4821	- Curriculum and Instruction in Science - Education & Psych. of Exceptional Children - Teaching-Learning Process in Secondary School	(.1) (.1) (.1)
d. Strategies for Content Literacy	ED 415 ED 5681	- Curriculum and Instruction in Science - Reading in the Content Areas	(.1) (.5)
e. Critical Thinking and Problem Solving	ED 415 ED 4821	- Curriculum and Instruction in Science - Teaching-Learning Process in Secondary School	(.1) (.2)
f. English Language Learning	ED 5253 ED 415 ED 4821 ED 408 ED 4843	- Instructional Interventions in Reading for Adolescents & English Language Learners - Curriculum and Instruction in Science - Teaching-Learning Process in Secondary School - Education & Psych. of Exceptional Children - Field Experience Seminar	(.5) (.1) (.1) (.1) (.1)

2. Individual Student Needs

	Course Number	Course Title	Semester Hours
a. Psychological Development of the Child and Adolescent	(These two courses) ED 4052 AND ED 313B OR (These 3 courses) ED 4052 PSYCH 321 PSYCH 325	 - Educational Psychology: Focus on Teaching and Learning in Schools - Education, Childhood, Adolescence and Society - (same as above) - Developmental Psychology - Psychology of Adolescence	 (.2) 3 (.8) 3 3
b. Psychology/Education of the Exceptional Child	ED 408	- Education & Psychology of Exceptional Children	3 (.5)
c. Differentiated Learning	ED 4052 ED 415 ED 4821 ED 408 ED 4843	- Educational Psychology: Focus on Teaching and Learning in Schools - Curriculum and Instruction in Science - Teaching-Learning Process in Secondary School - Education & Psych. of Exceptional Children - Field Experience Seminar	(.1) (.1) (.1) (.2) (.2)

d. Classroom Management	ED 4052	- Educational Psychology: Focus on Teaching and Learning in Schools		(.1)
	ED 408	- Education & Psych. of Exceptional Children		(.1)
	ED 4821	- Teaching-Learning Process in Secondary School	3	(.2)
	ED 4843	- Field Experience Seminar		(.2)
e. Cultural Diversity	ED 313B	- Education, Childhood, Adolescence and Society		(.2)
	ED 4052	- Educational Psychology: Focus on Teaching and Learning in Schools		(.1)
	ED 4821	- Teaching-Learning Process in Secondary School		(.1)
	ED 4843	- Field Experience Seminar		(.1)
	(one course)	(one of the following courses)		
	ED 301C	- American School	3	
	ED 453B	- Sociology of Education		
	ED 459F	- Philosophies of Education		
	ED 481	- History of Education		
f. Educational Psychology	ED 4052	- Educational Psychology: Focus on Teaching and Learning in Schools	3	(.5)

3. Schools and the Teaching Profession

	Course Number	Course Title	Semester Hours	
a. Consultation and Collaboration	ED 4843	- Field Experience Seminar	2	(.2)
	ED 4821	- Teaching-Learning Process in Secondary School		(.1)
b. Legal/Ethical Aspects of Teaching	ED 4843	- Field Experience Seminar		(.2)
	ED 4821	- Teaching-Learning Process in Secondary School		(.1)
	ED 408	- Education & Psych. of Exceptional Children		(.1)

4. Secondary Literacy (Minimum of six semester hours)

	Course Number	Course Title	Semester Hours	
a. Reading and Writing in the Content Area	ED 5681	- Reading in the Content Areas	3	(.5)
b. Instructional Interventions for Students with Reading Deficits	ED 5253	- Instructional Interventions in Reading for Adolescents & English Language Learners	3	(.5)
		Professional Requirements - Total Semester Hours	**26**	

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)	ED 4052	- Educational Psychology: Focus on Teaching and Learning in Schools	1
2. Mid-Level Field Experiences (Minimum of one semester hour with a minimum of 45 clock hours)	ED 4843	- Field Experience Seminar	1
3. Culminating Clinical Experiences (Minimum of eight semester hours with a minimum of 12 weeks in one placement)	ED 492	- Student Teaching in Secondary School	8
		Field and Clinical Experiences - Total Semester Hours	**10**

C. Physics Content Knowledge Area (Minimum of 35 semester hours)

	Course Number	Course Title	Semester Hours
1. History/Philosophy of Science and Technology (three semester hours)	PHIL 321G	- Philosophy of Science	3
2. Physics Coursework – Minimum of 20 semester hours which must include:			
a. Mechanics	(One course in block)	(One course in block)	
	PHYSICS 197	- Physics I	4
	PHYSICS 117A	- General Physics I	4
	PHYSICS 411	- Mechanics	3
	PHYSICS 322	- Physical Measurement Laboratory	3
b. Electricity and Magnetism	(One course in block)	(One course in block)	
	PHYSICS 198	- Physics II	4
	PHYSICS 118A	- General Physics II	4
	PHYSICS 421	- Electricity and Magnetism	3
c. Health, Sound, and Light	PHYSICS 316	- Optics and Wave Physics Laboratory	3
d. Atomic or Modern Physics	PHYSICS 217	- Introduction to Quantum Physics	3

e. Physics Electives	(Any two electives from this block or any block)	(Any two electives from this block or any block)	
	PHYSICS 126A	- Stars, Galaxies and Cosmology	3
	PHYSICS 141	- Selected Topics in Physics I	3
	PHYSICS 142	- Selected Topics in Physics I	3
	PHYSICS 171A	- Physics and Society	3
	PHYSICS 216	- Introduction to Relativity: The Special Theory	3
	PHYSICS 217	- Introduction to Quantum Physics	3
	PHYSICS 219	- Energy and the Environment	3
	PHYSICS 241	- Select Topics in Physics II	3
	PHYSICS 242	- Select Topics in Physics II	3
	PHYSICS 312	- Introduction to Astrophysics	3
	PHYSICS 314	- Physics of the Heart	3
	PHYSICS 318	- Introduction to Quantum Physics II	3
	PHYSICS 321	- Electronics Laboratory	3
	PHYSICS 341	- Selected Topics in Physics III	3
	PHYSICS 342	- Selected Topics in Physics III	3
	PHYSICS 344	- Energy and Environmental Physics	3
	PHYSICS 350	- Physics of the Brain	3
	PHYSICS 351	- Introduction to Biomedical Physics	3
	PHYSICS 352	- Physics of Biomolecules	3
	PHYSICS 355	- Physics of Vision	3
	PHYSICS 360	- Biophysics Laboratory	3
	PHYSICS 400	- Physical Science in 12 Problems	3
	PHYSICS 422	- Electricity and Magnetism II	3
	PHYSICS 427	- Introduction to Computational Physics	3
	PHYSICS 435	- Nuclear and Radiochemistry Lab	3
	PHYSICS 436	- Introduction to the Atomic Nucleus	3
	PHYSICS 441	- Selected Topics in Physics IV	3
	PHYSICS 442	- Selected Topics in Physics IV	3
	PHYSICS 444	- Energy and Environmental Physics	3
	PHYSICS 446	- Galactic Astrophysics	3
	PHYSICS 450	- Physics of the Brain	3
	PHYSICS 455	- Physics of Vision	3
	PHYSICS 456	- Stellar Astrophysics	3
	PHYSICS 460	- X-Ray & Gamma-Ray Astrophysics	3
	PHYSICS 463	- Statistical Mechanics and Thermodynamics	3
	PHYSICS 471	- Quantum Mechanics	3
	PHYSICS 472	- Solid State Physics	3
	PHYSICS 474	- Introduction to Particle Physics	3
	PHYSICS 476	- Astrophysics	3
	PHYSICS 477	- Physics of Finite and Infinite Nuclear Systems	3
	PHYSICS 478	- From Black Holes to the Big Bang	3
3. Additional Science Coursework – Minimum of 12 semester hours which must include:			
f. Chemistry	(One course and one lab course in block)	(One course and one lab course in block)	
	CHEM 111A	- General Chemistry I	3
	CHEM 151	- General Chemistry Lab I	2
	OR		
	CHEM 112A	- General Chemistry II	3
	CHEM 1152	- General Chemistry Lab II	2
g. Biology	BIOL 2960	- Principles of Biology I	4
h. Earth Science	EPSC 201	- Earth and the Environment	4
i. Environmental Science	(One course in block)	(One course in block)	
	BIOL 2950	- Introduction to Environmental Biology	3
	BIOL 381	- Introduction to Ecology	3
		Content Knowledge Area – Total Semester Hours	**35**