

**Title 5—DEPARTMENT OF ELEMENTARY AND SECONDARY EDUCATION
Division 20—Division of Learning Services
Chapter 400—Office of Educator Quality**

PROPOSED AMENDMENT

5 CSR 20-400.540 Certification Requirements for Teacher of Secondary Education (Grades 9 – 12). The State Board of Education is proposing to amend subsection (2)(A), adding a new subsection (2)(B), and amending sections (12)-(21).

PURPOSE: This amendment is to update the requirements for the Agriculture Education certificate and to remove requirements for Unified Science: Biology; Unified Science: Chemistry; Unified Science: Earth Science; Unified Science: Physics; and General Science certificates.

(2) In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Agriculture may be granted an initial Missouri certificate of license to teach Agriculture subject to completion of at least fifty-three (53) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

(A) A minimum of [*thirty (30)*] **forty-five (45)** semester hours shall be completed from paragraphs (2)(A)1.-7.—

1. Animal Science, minimum of three (3) semester hours;
2. Agronomy, minimum of three (3) semester hours;
3. Agricultural Business, minimum of three (3) semester hours;
4. Agricultural Economics, minimum of three (3) semester hours;
5. Agricultural Mechanics, minimum of three (3) semester hours;
6. Horticulture, minimum of three (3) semester hours; and
7. Electives [*from sections 1-6, zero (0) to twelve (12) semester hours.*] **(27 semester hours) Must include twelve (12) semester hours from sections 1.-6. and fifteen (15) semester hours of other agriculture-related coursework.**

(B) A minimum of eight (8) semester hours shall be completed from paragraphs (2)(B) 1.-7.—

- 1. Methods of Teaching Vocational Agriculture;**
- 2. Program Planning;**

3. Developing and Supervising Occupational Experience Programs—

A. Ownership (Entrepreneurship); and

B. Placement;

4. Developing and Using Instruction Materials and Teaching Aids;

5. Supervising Student Organizations;

6. Teaching Agriculture Mechanics; and

7. Planning and Conducting Adult Programs for Young and Adult Farmers.

(12) [In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach General Science may be granted an initial Missouri certificate of license to teach General Science subject to completion of at least thirty-five (35) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

(A) History/Philosophy of Science and Technology, three (3) semester hours; and

(B) A minimum of thirty-two (32) hours in General Science, which must include:

1. Chemistry;

2. Biology;

3. Physics;

4. Earth Science;

5. Astronomy; and

6. Environmental Science.

(13) [In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Physics may be granted an initial Missouri certificate of license to teach Physics subject to completion of at least thirty-five (35) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

(A) History/Philosophy of Science and Technology, three (3) semester hours;

(B) A minimum of twenty (20) hours in Physics, which must include:

1. Mechanics;
2. Electricity and Magnetism;
3. Heat, Sound, and Light;
4. Atomic or Modern Physics; and
5. Physics Electives; and

(C) A minimum of twelve (12) additional hours in Science, which includes:

1. Chemistry;
2. Biology;
3. Earth Science; and
4. Environmental Science.

[(14) In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Unified Science: Biology may be granted an initial Missouri certificate of license to teach Unified Science: Biology subject to completion of at least fifty (50) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

(A) History/Philosophy of Science and Technology, three (3) semester hours;

(B) Biology (to include Zoology and Botany with labs), six (6) semester hours;

(C) Chemistry (with labs), six (6) semester hours;

(D) Physics (with labs), six (6) semester hours;

(E) Earth Science (to include Geology and Meteorology), six (6) semester hours;

(F) Environmental Science, three (3) semester hours; and

(G) An additional twenty (20) semester hours in Biology to include coursework in:

- 1. Zoology;*
- 2. Botany;*
- 3. Genetics;*

4. *Cell/Biochemistry;*
5. *Microbiology;*
6. *Anatomy and Physiology;*
7. *Ecology; and*
8. *Evolution.*

(15) In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Unified Science: Chemistry may be granted an initial Missouri certificate of license to teach Unified Science: Chemistry subject to completion of at least fifty (50) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

- (A) History/Philosophy of Science and Technology, three (3) semester hours;*
- (B) Biology (to include Zoology and Botany with labs), six (6) semester hours;*
- (C) Chemistry (with labs), six (6) semester hours;*
- (D) Physics (with labs), six (6) semester hours;*
- (E) Earth Science (to include Geology and Meteorology), six (6) semester hours;*
- (F) Environmental Science, three (3) semester hours; and*
- (G) An additional twenty (20) semester hours in Chemistry to include coursework in:*
 - 1. Organic Chemistry;*
 - 2. Physical Chemistry;*
 - 3. Quantitative Analysis;*
 - 4. Biochemistry;*
 - 5. Qualitative Analysis;*
 - 6. Advanced Analysis; and*
 - 7. Environmental Chemistry.*

(16) In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Unified Science: Earth Science may be granted an initial Missouri certificate of license to teach Unified Science: Earth Science subject to completion of at least fifty (50) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

(A) History/Philosophy of Science and Technology, three (3) semester hours;

(B) Biology (to include Zoology and Botany with labs), six (6) semester hours;

(C) Chemistry (with labs), six (6) semester hours;

(D) Physics (with labs), six (6) semester hours;

(E) Earth Science (to include Geology and Meteorology), six (6) semester hours;

(F) Environmental Science, three (3) semester hours; and

(G) An additional twenty (20) semester hours in Earth Science to include coursework in:

1. Geology;

2. Astronomy;

3. Meteorology;

4. Paleontology; and

5. Oceanography.

(17) In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Unified Science: Physics may be granted an initial Missouri certificate of license to teach Unified Science: Physics subject to completion of at least fifty (50) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

(A) History/Philosophy of Science and Technology, three (3) semester hours;

(B) Biology (to include Zoology and Botany with labs), six (6) semester hours;

(C) Chemistry (with labs), six (6) semester hours;

(D) Physics (with labs), six (6) semester hours;

(E) Earth Science (to include Geology and Meteorology), six (6) semester hours;

(F) Environmental Science, three (3) semester hours; and

(G) An additional twenty (20) semester hours in Physics to include coursework in:

- 1. Quantum Physics;*
- 2. Atomic/Nuclear Physics;*
- 3. Heat/Thermodynamics;*
- 4. Health Physics;*
- 5. Optics;*
- 6. Electricity/Magnetism; and*
- 7. Statistics/Mechanics.*

(18)] (13) In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Social Science may be granted an initial Missouri certificate of license to teach Social Science subject to completion of at least thirty-nine (39) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

- (A) U.S. History, twelve (12) semester hours;
- (B) World History, nine (9) semester hours;
- (C) Political Science (State and U.S. Government), six (6) semester hours;
- (D) Economics, three (3) semester hours;
- (E) Geography, three (3) semester hours; and
- (F) Behavioral Science (Sociology, Anthropology, or Psychology), six (6) semester hours.

[(19)] (14) In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Speech and Theatre may be granted an initial Missouri certificate of license to teach Speech and Theatre subject to completion of at least thirty (30) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

- (A) Speech, twelve (12) semester hours (must include three (3) semester hours of debate);
- (B) Theatre, twelve (12) semester hours; and

(C) Electives (from Speech, Theatre, and/or Mass Communications), six (6) semester hours.

[(20)] **(15)** In addition to the requirements specified in subsections (1)(A)-(C) of this rule, an applicant for a Missouri certificate of license to teach Technology and Engineering may be granted an initial Missouri certificate of license to teach Technology and Engineering subject to completion of at least thirty-six (36) semester hours in the following content knowledge areas and demonstration of competency to the satisfaction of the educator preparation institution:

(A) Communication Technology, six (6) semester hours;

(B) Energy and Power, six (6) semester hours;

(C) Materials and Processes Technology, six (6) semester hours;

(D) Organization and Administration, six (6) semester hours; and

(E) Electives, twelve (12) semester hours.

[(21)] **(16)** The requirements of this rule shall become effective August 1, *[2017]***2019**.

AUTHORITY: sections 168.011, 168.405, [and] 168.409, [RSMo 2000, and sections] 161.092, 168.021, 168.071, 168.081, and 168.400, RSMo [Supp. 2013] 2016. Original rule filed Oct. 29, 2013, effective May 30, 2014. Amended: Filed January 15, 2019

PUBLIC COST: This proposed amendment will not cost state agencies or political subdivisions more than five hundred dollars (\$500) in the aggregate.

PRIVATE COST: This proposed amendment will not cost private entities more than five hundred dollars (\$500) in the aggregate.

*NOTICE TO SUBMIT COMMENTS: Anyone may file a statement in support of or in opposition to this proposed amendment with the Department of Elementary and Secondary Education, ATTN: Dr. Paul Katnik, Assistant Commissioner, Office of Educator Quality, PO Box 480, Jefferson City, MO 65102-0480 or by email to educatorquality@dese.mo.gov. To be considered, comments must be received within thirty (30) days after publication of this notice in the **Missouri Register**. No public hearing is scheduled.*