Physics Education

Bachelor of Science in Education (BSED)

The B.S. Ed. in Physics Education prepares highly qualified teachers of physics. Students are certified to teach high school physics once all degree requirements and assessments are passed. Students have an exceptional program of professional preparation including field experiences, theory and pedagogy courses. The major is well rounded, helping teachers develop a strong foundation of physics knowledge. Once initial certification is obtained, additional areas of science may be added by passing the Missouri Content Assessment exams, as of present.

Science teachers are in high demand across most of the United States and particularly in Missouri. Because of this there are forgiveness programs for different types of Federal loans in return for teaching science in a high needs school district (most in Missouri). In addition, students may be eligible to participate in the TEACH grant program which can pay up to $16,000 in college costs over four years and has a similar loan forgiveness program. Be sure to consult the financial aid office for details.

Becoming Career Ready...

/ Faculty-mentored learning and guidance will help you develop the professional skills needed to become a successful teacher and/or go on for advanced study in graduate and professional programs.

/ B.S. Ed. in Physics Education graduates work in the education field. Examples of job titles include high school physics teacher, college laboratory technician and college science professor (requires M.S. or Ph.D. degree).

/ 100% of Southeast programs offer real-world experience. B.S. Ed. in Physics Education students earn this experience through student teaching.

/ B.S. Ed. in Physics Education students will study in the state-of-the-art, first-rate learning environment provided by the recently renovated Magill Hall of Science while gaining hands-on experience and training using a variety of lab equipment, chemical instruments, and tools in laboratory courses. Undergraduate research is also an option.

/ The path to a successful career starts with you! You can maximize your career development by working closely with Career Services and Southeast faculty – they are here to help you connect your passions, interests and skills to jobs and opportunities in the field. Career Services provides professional career counseling and coaching, resume critiques, practice interviews, job search strategies, career events, networking opportunities and more.

Employment Opportunities of Recent Graduates:

- Physics Teacher
- General Science Teacher
- Chemistry Teacher
- Biology Teacher
- Earth Science Teacher
- Educational Administrator
- Science Supply Salesperson
- Textbook Sales Representative
- Laboratory Technician
- Hallsville High School, mathematics teacher
- Parkway West HS, physics teacher
- Cape Central HS, science teacher

Admission Requirements

- 42 credit hours completed
- 2.75 cumulative GPA
- One of the following: 1) Composite/Superscore of 20 or higher on the ACT exam; 2) Passing scores on all sections of the Missouri General Education Assessment (MoGEA); or 3) A 4-year degree from an accredited college/university
- The following course requirements met:
  - A grade of B or above in ED280 Introduction to Education
  - A grade of C or above in ED280 Introduction to Education

Additional Information

The state of Missouri has high expectations for future educators. Students matriculating into education programs must meet the following standards to be recommended for licensure following degree completion.

Students must maintain a 2.75 cumulative GPA and a 3.0 GPA in both the area of content expertise and pedagogy courses. In addition, students must pass the MO Content Exam and the MO Educator Evaluation System for recommendation for licensure. Students must also fulfill other assessments such as a dispositions profile and be cleared through an FBI background check.

Special Options with Secondary Education

Southeast offers a Master of Arts in Secondary Education: Educational Studies or Educational Technology.

Transfer and Dual Credit Students

If you have dual credit or transfer credit, please visit our transfer course equivalencies guide at semo.edu/transfercredit.
## Physics Education

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This is a guide based on the 2020-2021 Undergraduate Bulletin and is subject to change. The time it takes to earn a degree will vary based on several factors such as dual enrollment, remediation, and summer enrollment. Students will meet with an academic advisor each semester and use Degree Works to monitor their individual progress.

### CURRICULUM CHECKLIST

"Critical Courses" are italicized and bold. Data shows that students who have completed this course in the first two years and have earned the noted grade are most likely to complete this program of study.

#### Education Courses - 47 Hours Required

A grade of "C" or better is required in education courses, with the exception of ED380 which requires a grade of "B" or better.

- **ED280 Introduction to Education as a Profession (3)**
- **EED200 Student Teaching Seminar (1)**
- **EX390 Psychology and Education of the Exceptional Child (3)**
- **PY222 Development of the Adolescent (3)**
- **SE307 Content Literacy Methods for Middle and High School (3)**
- **SE320 Techniques of Teaching Science (3)**
- **SE355 Pedagogy 1: Principles of Effective Teaching (3)**
- **SE355 Field Experience I (3)**
- **SE385 Pedagogy 2: Secondary School-Interdisciplinary Methods and Technology (4)**
- **SE380 Advanced Field Experience (3)**
- **SE385 Pedagogy 3: Advanced Methods of Middle and Secondary Teaching (3)**
- **SE380 Instructional Interventions for Middle and Secondary Students with Special Needs (3)**
- **SE421 Student Teaching (12)**

#### Physics Education – 59-62 Hour Major - No Minor Required

**Required Courses:**

- **PH230/030 General Physics I (5)**
- **PH231/031 General Physics II (5)**
- **PH405 Experimental Methods I (3)**
- **PH300 Modern Physics (3)**
- **UI422 Scientific Reasoning (3)**

**Choose 3 Hours From:**

- **BI322 General Ecology (3)**
- **GO305 Environmental Geoscience (3)**
- **UI360 Recycling & Waste Management (3)**
- **UI372 Earthquakes & Society (3)**

**Choose 3 Hours From:**

- **BS108 Biology for Living (3)**
- **BS218 Biologic Science: A Process Approach (3)**

**Choose 5-8 hours:**

- **CH181 Introductory Chemistry I (5)**
- **CH185 General Chemistry (5)**
- **CH186 Found of Inorganic Chem (3)**

**Choose 3 Hours From:**

- **GO110 Physical Geology (3)**
- **GO202 Oceanography (3)**
- **GO418 Meteorology (4)**
- **UI318 Earth Sci: A Process Approach (3)**

**Choose 3 hours at the 300-599 level:**

**EPxxx**

**PHxxx**

**Choose 9 Hours From:**

- **CS201 Introduction to Computer Programming (3)**
- **EP100 Physics & Engineering Concepts (3)**
- **EP240 Circuit Analysis (4)**
- **EP305 Digital & Analog System Design (3)**
- **EP310 Microcontroller & Embedded Systems (3)**
- **EP345 Electronic Circuits (3)**
- **EP462 Materials Science (3)**
- **PH228 Energy (3)**
- **PH341 Optics (3)**
- **PH370 Mechanics (3)**
- **PH371 Electrodynamics (3)**
- **PH400 Topics in Physics & Engineering (3)**
- **PH473 Quantum Mechanics (3)**
- **PH475/476 Literature of Physics (1-2)**
- **PH478/479 Undergraduate Research (1-2)**
- **PH390/391 Independent Study in Physics (1-2)**
- **PH570 Mathematical Physics (3)**

#### Additional Requirements:

- **EP405 Engr in Science Educ (1)**
- **MA140 Analytic Geometry & Calculus I (5)**
- **MA145 Analytic Geometry & Calculus II (4)**
- **MA244 Analytic Geometry & Calculus III (4)**

#### General Education Requirements – some requirements may be fulfilled by coursework in major program

Social and Behavioral Sciences (6); Constitution requirement (3); Written Communication (6); Oral Communication (3); Natural Sciences (7 hours, from two disciplines, one to include a lab); Mathematics (3); Humanities & Fine Arts (9 hours, from at least two disciplines); Additional requirements 5 hours (to include UI100 for native students); Civics examination

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**SAMPLE FOUR-YEAR PLAN**

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**THIRD YEAR**

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**FOURTH YEAR**

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**Milestone: Passing score Mo Content Exam, MoPTA, 2.75 cumulative GPA, Complete MEP**

* A "Milestone" signifies a significant stage for a student in the completion of a degree.

**Degree requirements for all students:** a minimum of 120 credit hours, completion of the General Education program, and completion of 39 senior division hours (300-599). Refer to the Undergraduate Bulletin or Degree Works for additional graduation requirements for your program.

*Students have the option of adding another area of concentration or a minor to this degree.*

Revised 6/1/2020