### Science Education - Physics Concentration

**License: Physics**

**Grade Levels 5-12**  
**REPA 3**

Purdue University Course Catalog 2023-2024

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<td><strong>Overall GPA for Physics Concentration courses with the Departmental/Program Major Courses must be at least 2.50/4.00</strong></td>
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**Required Science Education Core Courses**

**Required Chemistry Course (Select One)**

| CHM 11500  | General Chemistry OR  | 4 |
| CHM 12500  | Introduction to Chemistry  | 5 |

**Required Computing Option (Select one)**

| CS 15900  | C Programming OR  | 3 |
| CS 17600  | Data Engineering in Python OR  | 3 |
| CS 17700  | Programming with Multimedia Objects OR  | 4 |
| CS 18000  | Problem Solving and Object-Oriented Programming  | 4 |

**Required Calculus Courses (Select One Pair)**

| MA 16100  | Plane Analytic Geometry and Calculus I  | 5 |
| MA 16200  | Plane Analytic Geometry and Calculus II  | 5 |
| OR        |      | |
| MA 16500  | Analytic Geometry and Calculus I  | 4 |
| MA 16600  | Analytic Geometry and Calculus II  | 4 |

**Required Physics Course (Select One)**

| PHYS 17200  | Modern Mechanics (HONORS version required) OR  | 4 |
| PHYS 27200  | Electric and Magnetic Interactions (HONORS version required)  | 4 |

**Required Statistics Course**

| STAT 30100  | Elementary Statistical Methods  | 3 |

**Physics Concentration**

| PHYS 30600  | Mathematical Methods of Physics I  | 3 |
| PHYS 30700  | Mathematical Methods of Physics II  | 3 |
| PHYS 31000  | Intermediate Mechanics  | 4 |
| PHYS 33000  | Intermediate Electricity and Magnetism  | 3 |
| PHYS 34000  | Modern Physics Laboratory  | 1 |
| PHYS 34400  | Modern Physics  | 4 |

**Credit Hours**

58-64
PHYS 36000  Quantum Mechanics 3
PHYS 42200  Waves and Oscillations 3
PHYS 45000  Intermediate Laboratory 2

Select One
CHM 11600  General Chemistry OR 4
CHM 12600  Introduction to Chemistry II OR 5
CHM 13600  General Chemistry Honors 4

Selectives (6-7 credits)
PHYS 53600  Electronic Techniques for Research OR 4
PHYS 58000  Computational Physics 3

AND
PHYS/ASTR higher than 300-level OR
Science/Engineering higher than 300-level (met with STAT 30100) OR
Science/Engineering higher than 300-level (met with Great Issues Option)

PROFESSIONAL EDUCATION
All Professional Education courses, including University Concentration courses, are calculated into the Professional Education GPA ("B" average with no grade lower than a "C")

Required for TEP Admission
EDCI 20500  Exploring Teaching as a Career 2
EDCI 28500  Multiculturalism and Teaching 2
EDST 20010  Educational Policies and Laws 1

Core Courses
EDCI/EDPS 20001  Special Populations Seminar: Focus On Students with Disabilities and Differentiation Approaches 1
EDCI/EDPS 20002  Special Populations Seminar: English Language Learners and Students with Gifts and Talents 1
EDCI 27000  Introduction to Educational Technology and Computing 1
EDCI 30900  Reading in the Middle and Secondary Schools: Methods and Problems 1-3
EDCI 35000  Community Issues & Applications for Educators 1-3
EDCI 37001  Teaching and Learning English as a New Language 2-3
EDPS 23500  Learning and Motivation 2-3
EDPS 24000  Children with Gifts, Creativity, and Talents 1
EDPS 24800  Differentiating Curriculum and Instruction 1
EDPS 26501  The Inclusive Classroom 2
EDPS 32700  Classroom Assessment 1-3
EDPS 36201  Positive Behavioral Supports 2-3
EDPS 43010  Secondary Creating and Managing Learning Environments 2-3

Methods Courses
EDCI 42400  The Teaching of Earth and Physical Science in Secondary Schools 3

Select One
EDCI 42800  Teaching Science in the Middle and Junior High School OR 2
EDCI 55800  Integrated Science, Technology, Engineering, and Mathematics (STEM) Educations Methods-Secondary 3
Student Teaching
Completion of education methods courses and other Milestone requirements for the major area and admittance to teacher education required prior to this course.
EDCI 49800 Supervised Teaching 12

University Concentrations
Choose one course from the concentrations below that was not already taken as a required course. Students can elect to take additional coursework to complete a full concentration if they choose, but it is not required.

English Language Learners (Licensure Eligible) 12-13
EDCI 37001 Teaching and Learning English as a New Language 2-3
EDCI 51900 Teaching English Language Learners 3
EDCI 52600 Language Study for Educators 3
EDCI 55900 Academic Language and Content Area Learning 3
EDCI/EDPS 20002 Special Pop Sem: English Lang Learners and Students with Gifts OR Special Pop Sem: English Lang Learners and Students with Gifts 1

High Ability (Licensure Eligible) 13-15
All courses must be completed with a B- or better average
EDCI/EDPS 20001 Special Pop Sem: Focus on Students with Disabilities and Differentiation 1
EDCI/EDPS 20002 Special Pop Sem: English Lang Learners and Students with Gifts OR Special Pop Sem: English Lang Learners and Students with Gifts 1
EDPS 24800 Differentiating Curriculum and Instruction 1
EDPS 49500 Practicum in Gifted, Creative, and Talented Education 3
EDPS 54200 Curriculum and Program Development in Gifted Education 3
EDPS 54500 Social and Affective Development of Gifted Students 3
Select one
EDPS 24000 Children with Gifts, Creativity, and Talents OR
EDPS 54000 Gifted, Creative, and Talented Children 3

Special Education (Non-Licensure) 12-13
EDCI/EDPS 20001 Special Pop Sem: Focus on Students with Disabilities and Differentiation OR Special Pop Sem: Focus on Students with Disabilities and 1
EDCI/EDPS 20002 Special Pop Sem: English Lang Learners and Students with Gifts OR Special Pop Sem: English Lang Learners and Students with Gifts 1
EDPS 21100 Special Education Law, Policy, and Ethical Guidelines 3
EDPS 26501 The Inclusive Classroom 2
EDPS 36201 Positive Behavioral Supports 2-3
EDPS 41700 Special Education Knowledge and Skills for General Educators 3

Applied Behavioral Analysis (Non-Licensure) 12
EDPS 34100 Introduction to Philosophical Underpinning and Concepts of Behavior 3
EDPS 34200 Applied Behavior Analysis - Assessment and Intervention 3
Licensure Information

All Purdue University Program and Indiana Department of Education requirements must be met for recommendation for Indiana licensure.

After all requirements are met, Purdue graduates will be considered eligible to apply to the Indiana Department of Education for licensure under REPA 3 in:

Physics (5-12)
Addition in Blended and Online Teaching (5-12)
Optional: Addition in High Ability Education (P-12) or Teachers of English Learners (P-12) if chosen university concentration requirements are complete

Visit the Indiana Department of Education website for more information about what courses can be taught once licensed in this area.

Please reference the 2023-2024 Physics Education Guidelines and Requirements and the 2023-2024 Science:Physics Education Checklist for more information.