

**SCIENCE EDUCATION
PHYSICS CONCENTRATION**

**Grade Levels 5-12
REPA 3**

NOT VALID WITHOUT OFFICIAL TRANSCRIPT EVALUATION

[Purdue University Course Catalog 2022-2023](#)

CONTENT

CREDIT HOURS

Major Courses

<i>Physics Concentration (36-38)</i>		4-5
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
PHYS	36000 Quantum Mechanics	3
PHYS	42200 Waves and Oscillations	3
PHYS	45000 Intermediate Laboratory	2

Choose one of the following: 4-5

CHM	11600 General Chemistry (4)
CHM	12400 General Chemistry for Engineers II (4)
CHM	12600 Introduction to Chemistry II (5)
CHM	13600 General Chemistry Honors (4)
(CHM 13600 takes the place of CHM 11500 and 11600, or CHM 12300 and 12400, or CHM 12500 and 12600)	

Physics Selective (6-7) 6-7

PHYS	53600 Electronic Techniques for Research (4)
PHYS	58000 Computational Physics (3)
PHYS/ASTR higher than 300-level (3)	
Science/Engineering higher than 300-level (met with STAT 30100)	
Science/Engineering higher than 300-level (met with Great Issues Option)	

Required Chemistry Course (4-5) 4-5

Biology students must take CHM 12901; Chemistry, Earth/Space Science, and Physics students choose CHM 11500 or CHM 12500.

CHM	11500 General Chemistry (4)
CHM	12300 General Chemistry for Engineers I (5)
CHM	12500 Introduction to Chemistry I (5)

3-4

Required Computing Option (3-4)

Choose one available for your concentration.

CS	15900 C Programming (3)
CS	17700 Programming with Multimedia Objects (4)
CS	18000 Problem Solving and Object-Oriented Programming (4)

6-10

Required Calculus Selective (6-10)

Choose one available for your concentration.

Option 1 (all concentrations)	
MA	16100 Plan Analytic Geometry and Calculus I (5)
MA	16200 Plan Analytic Geometry and Calculus II (5)

Option 2 (all concentrations)
 MA 16500 Analytic Geometry and Calculus I (4)
 MA 16600 Analytic Geometry and Calculus II (4)

Option 3 (Biology Only)
 MA 16010 Applied Calculus I (3)
 MA 16010 Applied Calculus II (3)

Required Physics Courses (8)

8

Choose one sequence available for your concentration.

Option 1 (Biology, Chemistry, Earth/Space)
 PHYS 17200 Modern Mechanics (4)
 PHYS 27200 Electric and Magnetic Interactions (4)

Option 2 (Physics Only)
 PHYS 17200 Modern Mechanics (4) **Honors Version Required**
 PHYS 27200 Electric and Magnetic Interactions (4) **Honors Version Required**

Option 3 (Biology, Chemistry, Earth/Space)
 PHYS 17200 Modern Mechanics (4)
 PHYS 24100 Electricity and Optics (3)
 PHYS 25200 Electricity and Optics Laboratory (1)

Option 4 (Earth/Space Only)
 PHYS 22000 General Physics (4)
 PHYS 22100 General Physics (4)

Option 5 (Biology Only)
 PHYS 23300 Physics for Life Sciences I (4)
 PHYS 23400 Physics for Life Sciences II (4)

Required Statistics Selective Course (3)

3

Choose one of the following courses:

STAT 30100 Elementary Statistical Methods (3)
 STAT 35000 Introduction to Statistics (3)
 STAT 50300 Statistical Methods for Biology (3)

Total Content 60-68

Educational Program Course Requirements

EDCI	20500	Exploring Teaching as a Career *required for TEP admission	2
EDCI	27000	Introduction to Educational Technology and Computing	1
EDCI	28500	Multiculturalism and Education *required for TEP admission	2
EDCI	30900	Reading in Middle and Secondary Schools	1
EDCI	35000	Community Issues and Applications for Educators	1
EDCI	37001	Teaching and Learning English as a New Language	2
EDPS	23500	Learning and Motivation	2
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
EDPS	36201	Positive Behavioral Supports	2
EDPS	43010	Secondary Creating and Managing Learning Environments	1
EDST	20010	Educational Policies and Laws * required for TEP admission	1

EDCI/ EDPS	20001	Special Pop Sem: Focus on Students with Disabilities and Differentiation (1), OR Special Pop Sem: Focus on Students with Disabilities and Differentiation (1)	1
EDCI/ EDPS	20002	Special Pop Sem: English Lang Learners and Students with Gifts (1), OR Special Pop Sem: English Lang Learners and Students with Gifts (1)	1

Methods Courses

EDCI	42400	The Teaching of Earth and Physical Science in the Secondary Schools	3
EDCI	42800	Teaching Science in the Middle and Junior High School ¹ OR	2-3
EDCI	55800	Integrated Science, Technology, Engineering, and Mathematics (STEM) Education Methods – Secondary ¹	
EDCI	49800	Supervised Teaching ¹	12

Learner Pathway Selective

3

Pick **ONE** course from the selective below in a pathway of your choice (required). ABA courses are included if allowed by the plan of study. Students can take two additional courses in the same pathway to complete requirements for an add-on teaching license in ELL or HA or take one additional course in the SPED pathway for a certificate in SPED.

English Language Learners Licensure Pathway

EDCI	51900	Teaching English Language Learners (3)
EDCI	52600	Language Study for Educators (3)
EDCI	55900	Academic Language and Content Area Learning (3)

High Ability Licensure Pathway

EDPS	54200	Curriculum and Program Development in Gifted Education (3)
EDPS	54500	Social and Affective Development of Gifted Students (3)

Special Education Non-Licensure Pathway

EDPS	21100	Special Education Law, Policy, and Ethical Guidelines (3)
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Applied Behavior Analysis Non-Licensure Pathway

EDPS	34100	Introduction to Philosophical Underpinnings and Concepts of Applied Behavior Analysis (3)
EDPS	34200	Applied Behavior Analysis – Assessment and Intervention (3)
EDPS	44100	Introduction to Ethics and Practice of Applied Behavior Analysis (3)
EDPS	44200	Advanced Intervention in Applied Behavior Analysis (3)

Total Professional Education 45

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 (P-12) or ELL (P-12) if chosen pathway requirements are completed

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

Please reference the 2022-2023 Science: Physics Education Guidelines and Requirements and the 2022-2023 Science: Physics Education Checklist for more information.