

# Physics with Secondary Education Bachelor of Science

Total Semester Hours: 92 Hours Per Semester: 18
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## Major Academic Plan (MAP) for Catalog Year 2021-2022

The catalog is the final authority on CATC and major requirements; this is intended as a tool for planning purposes. Student course sequencing may vary depending on course offerings and other variables.

Fall Semester 1	Spring Semester 1	Summer 1
<p>PHYS 231 Introductory Physics I<sup>1</sup>                      MATH 231 Calculus I<sup>1*</sup> or MATH 233 Calculus I B (2)<sup>1</sup></p> <p><i>CORE 101: First Year Seminar</i>  <i>First Year CATC options-</i></p> <ul style="list-style-type: none"> <li>▪ <i>AHS 101: Wellness (2)</i></li> <li>▪ <i>COMM 101: Oral Comm (2)</i></li> <li>▪ <i>ENGW 103: First-Year Writing</i></li> </ul>	<p>PHYS 232 Introductory Physics II<sup>S*</sup>                      MATH 232 Calculus II* or MATH 234 Calculus II B (2)*                      PHYS 294 Physics for the Future (2)                      EDUC 135 School and Society (2)                      EDUC 136 Teaching Diverse Students (2)                      EDUC 136L Cross-cultural Practicum (1)</p> <p><i>First Year CATC Options</i></p>	<p><i>Consider study, internship or research options –Wheaton</i>  <i>In summer program, WIN (HoneyRock), non-major internship, summer research or other options that provide work experience, build your resume, or grow you personally.</i></p>
<p><b>Fall Semester 2</b></p> <p>PHYS 334 Computer Modeling (2)<sup>F*</sup>                      MATH 333 Differential Equations*                      CHEM 231 General Chemistry I</p> <p><i>BITH 211/ARCH 211: Old Testament</i>  <i>Language Core Competency</i></p>	<p><b>Spring Semester 2</b></p> <p>PHYS 331 Spacetime and Quanta<sup>S*</sup>                      MATH 245 Linear Algebra*                      MATH 331 Vector Calculus (2)*                      EDUC 225 Learning and Development                      EDUC 225L Teaching Aiding Practicum (1)</p> <p><i>Language Core Competency</i>  <i>Visual and Performing Arts (2)</i></p>	<p><b>Summer 2</b></p> <p>BIOL 241 Organization of Life<sup>2, 4</sup>                      PHYS 305 Dakota Skies<sup>S, 2, 4</sup></p>
<p><b>Fall Semester 3</b></p> <p>Upper Division PHYS requirement<sup>3</sup>                      PHYS 345 Data Analysis and Presentation (2)                      PHYS 351 Analog Electronics (2)<sup>F*</sup>                      EDUC 306 Classroom Communication and Curriculum Integration</p> <p><i>BITH 213/ARCH 213: New Testament</i>  <i>Advanced Integrative Seminar*</i>  <i>Visual and Performing Arts (2)</i></p>	<p><b>Spring Semester 3</b></p> <p>PHYS 341 Analytical Mechanics<sup>S*</sup>                      EDUC 305 Learning Differences (2)                      EDUC 305L Learning Differences Practicum (1)<sup>5</sup>                      EDUC 324L Methods Practicum (1)<sup>5</sup>                      SCI 321 Science for Middle and High School Teachers (2)<sup>5</sup>                      SCI 325 Methods of Teaching Middle Grade Science (2)<sup>5</sup></p> <p><i>BITH 315: Christian Thought</i>  <i>Thematic Core</i>  <i>Visual and Performing Arts (2)</i></p>	<p><b>Summer 3</b></p> <p><i>Consider study, internship or research options –Wheaton</i>  <i>In summer program, WIN (HoneyRock), non-major internship, summer research or other options that provide work experience, build your resume, or grow you personally.</i></p>

Fall Semester 4	Spring Semester 4	Summer 4
EDUC 405 Middle Grade Practicum (1) <sup>4</sup> EDUC 494 Senior Seminar (2) EDUC 496 Student Teaching (9) EDUC 497 Philosophical. Foundations of Education (3)	PHYS 494 Senior Seminar (2) <sup>S*</sup> PHYS 359 Thermodynamics <sup>S#*</sup>  <i>Thematic Core (8-12)</i> <i>Complete Christ the Core Curriculum</i>	

**Notes or Special Guidance for Majors:**

\*Course has prerequisite

<sup>F</sup> Fall only course

<sup>S</sup> Spring only course

<sup>#</sup> Offered every other year

<sup>1</sup> Classes that meet CATC Thematic Core tags: PHYS 231 (SP), MATH 231 or MATH 233 (AAQR). Also see footnote 2 for how to meet the SIP tag with choices in the major.

<sup>2</sup> Select one from PHYS 305 (SP) or ASTR 305 (SIP) and one from BIOL 201 (SIP, SP) or BIOL 241 (SP).

<sup>3</sup> Select one from the following set of three upper level physics courses: PHYS 342 Electromagnetic Theory<sup>F#\*</sup>, PHYS 344 Quantum Mechanics<sup>F#\*</sup>, or PHYS 359 Thermodynamics<sup>S#\*</sup>.

<sup>4</sup> Taken at the Black Hills Science Station

<sup>5</sup> EDUC 305L and 324L must be taken in the semester prior to student teaching. EDUC 405 is required ONLY if teacher aiding was NOT completed in a middle school and must be completed prior to student teaching but is included in the course registration for the student teaching semester.

- All PHYS courses are offered Fall only or Spring only in the semester indicated. SCI 321 and SCI 325 are Spring only. EDUC 306 is Fall only.