

# Accelerated BS-MA Physics with Teaching Emphasis

## Physics B.S. with Teaching Emphasis (Accelerated BS/MA)

The Physics B.S. with Teaching Emphasis is designed for students who wish to teach physics at the middle or high school level. It provides a broad but rigorous background in the physics and chemistry needed by successful teachers, and includes an advanced physics education course designed specifically for majors in this program.

The BS-MA accelerated degree program allows undergraduate students in the Physics with Teaching Emphasis to begin coursework towards the Master of Arts in Physics with Teaching Emphasis during their senior year at Texas A&M University-Commerce. Students can earn a B.S. and M.A. degree in five years upon completion of degree requirements for both degrees. For this accelerated program, 6 credits of graduate courses can be applied to the undergraduate degree. Students must apply to the accelerated program by the end of their junior year after having completed at least 90 hours of undergraduate courses with a cumulative undergraduate GPA of 3.0 or higher, and a GPA of 3.0 or higher in physics courses. Additionally, students should have taken certain upper-level courses in their junior year to ensure they can be successful taking graduate courses while completing their student teaching experience in their senior year.

### Core Curriculum Courses

See the Core Curriculum Requirements (<http://coursecatalog.tamuc.edu/undergrad/core-curriculum-requirements/>) 42

### Teacher Certification, 6-12 Physical Science

#### Required courses in the major

PHYS 101	Physics and Astronomy Seminar	1
PHYS 2425	University Physics I *	
PHYS 2426	University Physics II *	
PHYS 317	Mathematical Methods for Physics and Engineering	3
PHYS 321	Modern Physics	3
PHYS 333	Wave Motion, Acoustics, and Optics	4
PHYS 345	Teaching and Learning Physics	3
PHYS 371	Science and Math Education Theory and Practice	2
or PHYS 401	Current Topics in Physics and Astronomy	
Choose two of following:		6
PHYS 411	Classical Mechanics	3
PHYS 412	Electricity and Magnetism	3
PHYS 420	Quantum Mechanics	3
PHYS 335	Advanced Physics Laboratory	3
or PHYS 319	Computational Physics with Python	
PHYS Elective (ADV)		4
CHEM 1111	General and Quantitative Chemistry Laboratory I	1
CHEM 1311	General and Quantitative Chemistry I	3
CHEM 1112	General and Quantitative Chemistry Laboratory II	1
CHEM 1312	General and Quantitative Chemistry II	3
CHEM 351	Physical Chemistry	4
<b>Teacher Education courses (LeoTeach Sequence)</b>		
PSY 300	Learning Processes and Development	3
SED 330	Foundations of Secondary Education	3
SED 331	Instructional Design for Diverse Learners	3
SED 332	Creating an Engaging Learning Environment	3
RDG 380	Comprehension and Vocabulary in Middle and High Schools	3
SED 400	Pedagogy and Classroom Management in Field-based Environments	3
SED 401	Technology Infused Curriculum and Assessment in Field-based Environments	3
SED 404	Secondary Teaching Practicum	3
SED 405	Secondary Residency in Teaching	6
<b>Support courses</b>		

MATH 2413	Calculus I *	
MATH 2414	Calculus II *	
MATH 2415	Calculus III	4
<b>Graduate Core Courses</b>		
PHYS 531A	Classical Mechanics: Analysis and Applications	3
PHYS 532A	Electromagnetism: Analysis and Applications	3
<b>Total Hours</b>		<b>120</b>

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This course should be used to satisfy the core curriculum requirements.

A grade of "C" or higher must be earned in all courses in this Major.

## Master of Arts in Physics with Emphasis in Physics Teaching (Accelerated BS/MA) Option II Non-Thesis

The BS-MA accelerated degree program allows undergraduate students in the Physics program to begin coursework towards the non-thesis option of the Master of Arts in Physics w/emphasis in Physics Teaching program during their senior year at Texas A&M University-Commerce. Students can earn a BS and MA degree in five years upon completion of degree requirements for both degrees. For this accelerated program, 6 credits of graduate coursework can be applied to both the BS and MA degrees. Once admitted, the BS/MA candidate must maintain a 3.25 Undergraduate GPA. In the final semester of the student's undergraduate program, a new online Apply Texas Application for the master's Accelerated program must be submitted to gain admission and continue taking classes to complete the master's program.

### Research (3 semester hours)

PHYS 595	Research Literature and Techniques	3
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### Required Courses (21 Semester Hours)

PHYS 526	Quantum Mechanics: Analysis and Applications	3
PHYS 530	Mathematical Methods: Analysis and Applications	3
PHYS 531A	Classical Mechanics: Analysis and Applications *	3
PHYS 532A	Electromagnetism: Analysis and Applications *	3
PHYS 535	Thermodynamics: Analysis and Applications	3
PHYS 536	Computational Physics: Analysis and Applications	3
PHYS 561	Astronomy & Astrophysics: Analysis and Applications	3

### Teaching Field Courses (12 Semester hours)

Plus (12 semester hours) that support the major teaching field, on approval of the graduate advisor.	12
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Courses shared with BS