



Bachelor of Science in Physics with Engineering Emphasis

Department of Physics

2022-2023 Catalog

Name: _____

Advisor's Signature: _____

UTA ID: 100

Date: 10/5/2022

CORE CURRICULUM & ELECTIVES

	Earned	Need
University Required course		
UNIV-SC 1101 - CAREER PREPARATION AND STUDENT SUCCESS	0	1
COMMUNICATION - 6 hours		
ENGL 1301 - Rhetoric and Composition I	0	3
ENGL 1302 - Rhetoric and Composition II <i>prereq: C or better in ENGL 1301</i>	0	3
Total	0	6
CREATIVE ARTS - 3 hours (select one of the following: ART 1301, MUSI 1300, THEA 1342, THEA 1343)	0	3
GOVERNMENT/POLITICAL SCIENCE - 6 hours		
POLS 2311 - Government of the United States	0	3
POLS 2312 - State and Local Government	0	3
Total	0	6
LANGUAGE, PHILOSOPHY AND CULTURE - 3 hours (select one of the following: ANTH 2322, ARAB 2314, ARCH 2300, ART 1309, ART 1310, ART 1317, CHIN 2314, ENGL 2303, ENGL 2309, ENGL 2319, ENGL 2329, FREN 2314, GERM 2314, GLOBAL 2301, INTS 1310, KORE 2314, LING 2371, PHIL 1301, PHIL 1304, PHIL 1310, PHIL 2300, PORT 2314, RUSS 2314, SPAN 2314)	0	3
LIFE AND PHYSICAL SCIENCE - 6 hours		
PHYS 1443 - General Technical Physics I <i>prereq: MATH 1426</i>	0	4
PHYS 1444 - General Technical Physics II <i>prereqs: C or better PHYS 1443 & MATH 2425 or concurrent enrollment</i>	0	4
Total	0	8
MATHEMATICS - 6 hours		
MATH 1426 - Calculus I <i>prereq: C or better in MATH 1421 Prerequisite: C or better in MATH 1421 Test scores</i>	0	4
MATH 2425 - Calculus II <i>prereq: C or better in MATH 1426</i>	0	4
Total	0	8
SOCIAL AND BEHAVIORAL SCIENCES - 3 hours (select one of the following: ANTH 1306, CRCJ 2334, ECON 2305, ECON 2306, ECON 2337, FINA 2330, IE 2308, LING 2301, MANA 2302, PSYC 1315, SOCI 1311, SOCI 2312)	0	3
U.S. HISTORY - 6 hours-HIST 1301, 1302, 1331 or 1332 -		
HIST 1301 - History of the U.S. to 1865 <i>prereq: ENGL 1301 or concurrent enrollment</i>	0	3
HIST 1302 - History of the U.S., 1865 to Present <i>prereq: ENGL 1301 or concurrent enrollment</i>	0	3
Total	0	6
FOUNDATIONAL COMPONENT AREA - 3 hours (any core course, cannot double-count)	0	3
GENERAL ELECTIVES as needed to total 120 hours for degree	0	7

ADDITIONAL DEGREE REQUIREMENTS

COMMUNICATION COMPETENCE - satisfied by PHYS 4117		*
COMPUTER COMPETENCE - satisfied by Computer Science requirement		*

SCIENCE

	Earned	Need
COMPUTER SCIENCE -		
select one of the following:	0	3
DATA 3401 — Python for Data Science 1 CSE 1311. INTRODUCTION TO PROGRAMMING FOR ENGINEERS Prerequisite: C or better in or concurrent enrollment (MATH 1421, MATH 1426, MATH 2425, MATH 2326, MATH 3330, HONR-SC 1426, or HONR-SC 2425)		
PHYS 2321 - Computational Physics <i>prereq: PHYS 1444</i>		
MATH 3345 - Numerical Analysis and Computer Applications <i>prereqs: C or better in MATH 2326 & C or better in MATH 3319 or 3330 C or better in MATH 3319 or 3330</i>		
CHEMISTRY - 4 hours		
CHEM 1441 - General Chemistry I <i>prereq: ALEKS pre-assignment, MATH 1302 or 1303 or appropriate ACT Math, SAT Math, or Math Placement Test score</i>	0	4
BIOLOGY, CHEMISTRY, OR GEOLOGY - 4 hours		
BIOL 1441, CHEM 1442, or 4hr GEOL course for majors	0	4
MATHEMATICS (additional) - 6 hours		
MATH 2326 - Calculus III <i>prereq: C or better in MATH 2425</i>	0	3
MATH 3319 - Differential Equations & Linear Algebra <i>prereq: C or better in MATH 2326 or concurrent enrollment</i>	0	3
or MATH 3318 - Differential Equations <i>prereq: C or better in MATH 2326 or concurrent enrollment</i>		
Total	0	6
MAJOR: Physics - 32 hours		
PHYS 2311 - Mathematical Methods of Physics <i>prereqs: C or better PHYS 1444 & MATH 2425</i>	0	3
PHYS 3313 - Introduction to Modern Physics <i>prereqs: C or better PHYS 1444 & MATH 2425</i>	0	3
PHYS 3183 - Modern Physics Laboratory <i>prereqs: C or better PHYS 3313 or concurrent enrollment</i>	0	1
PHYS 3321 - Intermediate Electricity and Magnetism <i>prereqs: C or better PHYS 2311 & 3318 or 3319</i>	0	3
PHYS 4315 - Thermodynamics and Statistical Mechanics <i>prereqs: C or better PHYS 3313 & MATH 2326</i>	0	3
PHYS 4326 - Introduction to Quantum Mechanics <i>prereqs: C or better PHYS 3313 & MATH 2326 or 3319</i>	0	3
PHYS 4117 - Individual Learning By Seminar <i>prereqs: 18 hours of Physics & senior standing</i>	0	1
PHYS 4324 - Advanced Electricity and Magnetism <i>prereqs: C or better PHYS 3321</i>	0	3
PHYS electives - 12 hours (no more than 4 hours can be used from PHYS 4181, 4281) ANY physics advanced (3000/4000-level) electivel courses not listed above		
PHYS 4327 is recommend to all of our majors planning on going on for a Ph.D. (3000/4000-level) electivel course	0	4
(3000/4000-level) electivel course	0	4
(3000/4000-level) electivel course	0	4
Total	0	32
MINOR: Engineering - 18 hours or more if needed		
	0	3
	0	3
	3	3
	0	3
	0	3
	0	3
Total	3	18
<i>PHYS 4327 elective course is recommended for Graduate school by Chair</i>		
TOTAL DEGREE HOURS - must have 120 to graduate	3	120
TOTAL ADVANCED (3000/4000-LEVEL) HOURS - must have 36 to graduate		36
TOTAL RESIDENCY HOURS - must have 30 to graduate		30

ANY Physics, Astrophysics, or Astronomy 3hr or 4hr advanced (3000/4000-level) courses not listed as a degree requirement can be used as elective

PHYSICS MAJOR COURSE ROTATION SCHEDULE subject to change

FALL & SPRING: PHYS 2311 (Mathematical Methods of Physics), PHYS 3313 (Introduction to Modern Physics), PHYS 3183 (Modern Physics Laboratory), PHYS 4117 (Individual Learning By Seminar)

FALL: PHYS 2321 (Computational Physics), PHYS 3321 (Intermediate Electricity and Magnetism), PHYS 4315 (Thermodynamics and Statistical Mechanics), PHYS 4326 (Introduction to Quantum Mechanics)

SPRING: PPHYS 4319 (Advanced Mechanics), PHYS 4324 (Advanced Electricity and Magnetism)

Students must maintain a minimum 2.25 cumulative GPA and a 2.25 Physics GPA. Failure to do so may result in dismissal from the College of Science.

Note: Students are encouraged to sign up for 1 or 2 hours research before or concurrent with signing up for PHYS 4117 seminar. The students may then use their research activities as the basis of their Seminar presentations.

Notes

T = transfer credit to UTA as soon as possible

? = may have credit; need to transfer it to UTA and/or Admissions needs to evaluate

cc = can be taken at a community college (consult transfer equivalency guide)

IP = course in progress; credit not yet earned

sub = credit earned but it needs to be subbed on UMAP for graduation