

REQUIREMENTS FOR THE BACHELOR OF SCIENCE IN ASTROPHYSICS
COLLEGE OF ARTS AND SCIENCES
 THE UNIVERSITY OF OKLAHOMA

For Students Entering the Oklahoma State System for Higher Education:

Summer 2018 through Spring 2019

Minimum Credit Hours and Grade Point Averages Required			
Total Hours —	120	Upper-Division Within Total	48
Major Hours —	49		
Grade Point Averages:			
Overall & Major: Combined OU/Transfer - 2.00 OU - 2.00			
48 Upper-Division Hours REQUIRED			

Astrophysics

B082

Bachelor of Science
in Astrophysics

OU encourages students to complete at least 30 hours of applicable coursework each year to have the opportunity to graduate in four years.

GENERAL EDUCATION AND COLLEGE REQUIREMENTS Courses graded P/NP will not apply.	Some courses required for the major may also fulfill University General Education and/or College of Arts & Sciences Requirements																																																																																	
Courses for fulfillment of General Education and College of Arts & Sciences requirements must be from the approved General Education course list published in the Class Schedule or at http://www.ou.edu/enrollment/home/ .	MAJOR REQUIREMENTS	MAJOR SUPPORT REQUIREMENTS																																																																																
	A grade of C or better must be earned in each required astronomy and physics course and in the required mathematics courses.																																																																																	
<p style="text-align: center;">University-Wide General Education (minimum 40 hours) and College of Arts and Sciences Requirements</p> <p>Core Area I: Symbolic and Oral Communication (9-22 hours, 3-6 courses)</p> <p>a. English Composition (6 hours, 2 courses)</p> <ol style="list-style-type: none"> 1. English 1113, Principles of English Composition 2. English 1213, Principles of English Composition, or EXPO 1213, Expository Writing <p>b. Foreign Language (0-13 hours in the same language) The College of Arts and Sciences requirement <i>cannot be met by high school coursework</i>.</p> <ol style="list-style-type: none"> 1. Beginning Course (0-5 hours) _____ 2. Beginning Course, continued (0-5 hours) _____ <p>♦ 3. Intermediate Course (2000 level, 0-3 hours). _____ One course at the intermediate level or demonstrated competency at that level.</p> <p>c. Mathematics (3 hours, 1 course). _____</p> <p>Core Area II: Natural Science (7 hours, 2 courses) including one laboratory component.</p> <p>♦ 1. Biological Science _____ Chosen from the following approved General Education designators: BIOL, HES, MBIO, or PBIO.</p> <p>♦ 2. Physical Science _____ Chosen from the following approved General Education designators: AGSC, ASTR, CHEM, GEOG, GEOL, GPHY, METR, or PHYS.</p> <p>Core Area III: Social Science (6 hours, 2 courses)</p> <ol style="list-style-type: none"> 1. Political Science 1113, American Federal Government 2. _____ <p>Core Area IV: Humanities (18 hours, 6 courses)</p> <p>a. Understanding Artistic Forms (3 hours, 1 course) _____</p> <p>b. Western Civilization and Culture (6 hours, 2 courses)</p> <ol style="list-style-type: none"> 1. History 1483, U.S., 1492-1865, or History 1493, U.S., 1865-Present, 2. _____ (excluding HIST 1483 and 1493) <p>c. Non-Western Culture (3 hours, 1 course): _____</p> <p>d. Additional Core IV Humanities courses (6 upper-division hours, 2 courses at the 3000- 4000-level). Must be outside the major and selected from Understanding Artistic Forms, Western Civilization and Culture, or Non-Western Culture.</p> <p>♦ 1. _____</p> <p>♦ 2. _____</p> <p>Core Area V: Senior Capstone Experience (3 hours, 1 course): _____</p> <p>♦ College of Arts and Sciences Requirements: College requirements are not automatically fulfilled by a previous degree.</p>	<p>ASTRONOMY</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">2513</td><td style="width: 65%;">Introductory Astrophysics</td><td style="width: 10%; text-align: center;">3</td><td style="width: 10%;"></td></tr> <tr><td>3103</td><td>Stars</td><td style="text-align: center;">3</td><td></td></tr> <tr><td>3113</td><td>Galaxies and Cosmology</td><td style="text-align: center;">3</td><td></td></tr> <tr><td>4303</td><td>Stellar Astrophysics</td><td style="text-align: center;">3</td><td></td></tr> </table> <p>PHYSICS</p> <table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;">1205</td><td style="width: 65%;">Introductory Physics I for Physics Majors</td><td style="width: 10%; text-align: center;">5</td><td style="width: 10%;"></td></tr> <tr><td>1215</td><td>Introductory Physics II for Physics Majors</td><td style="text-align: center;">5</td><td></td></tr> <tr><td>2203</td><td>Intro. Physics III: Modern Physics</td><td style="text-align: center;">3</td><td></td></tr> <tr><td>3043</td><td>Physical Mechanics I</td><td style="text-align: center;">3</td><td></td></tr> <tr><td>3053</td><td>Physical Mechanics II</td><td style="text-align: center;">3</td><td></td></tr> <tr><td>3183</td><td>Electricity & Magnetism I</td><td style="text-align: center;">3</td><td></td></tr> <tr><td>3302</td><td>Advanced Laboratory I, or</td><td></td><td></td></tr> <tr><td>3312</td><td>Advanced Laboratory II</td><td style="text-align: center;">2</td><td></td></tr> <tr><td colspan="4" style="text-align: center;">_____</td></tr> <tr><td>3803</td><td>Introduction to Quantum Mechanics I</td><td style="text-align: center;">3</td><td></td></tr> <tr><td>4153</td><td>Statistical Physics & Thermodynamics</td><td style="text-align: center;">3</td><td></td></tr> <tr><td>4300</td><td>Senior Research Project (Senior Capstone Course)</td><td style="text-align: center;">2</td><td></td></tr> <tr><td>4300</td><td>Senior Research Project (2 enrollments required)</td><td style="text-align: center;">2</td><td></td></tr> </table> <p>One of the following: MATH 3423, Physical Mathematics II PHYS 4183, Electricity & Magnetism II PHYS 4803, Intro. to Quantum Mech. II An astronomy course at the 5000-level.</p> <p>_____</p> <p style="text-align: center;">3</p> <p>Strongly Recommended: 4183 Electricity and Magnetism II 4803 Intro. to Quantum Mechanics II An astronomy course at the 5000-level.</p>	2513	Introductory Astrophysics	3		3103	Stars	3		3113	Galaxies and Cosmology	3		4303	Stellar Astrophysics	3		1205	Introductory Physics I for Physics Majors	5		1215	Introductory Physics II for Physics Majors	5		2203	Intro. Physics III: Modern Physics	3		3043	Physical Mechanics I	3		3053	Physical Mechanics II	3		3183	Electricity & Magnetism I	3		3302	Advanced Laboratory I, or			3312	Advanced Laboratory II	2		_____				3803	Introduction to Quantum Mechanics I	3		4153	Statistical Physics & Thermodynamics	3		4300	Senior Research Project (Senior Capstone Course)	2		4300	Senior Research Project (2 enrollments required)	2		<table style="width: 100%; border-collapse: collapse;"> <tr><td style="width: 15%;"></td><td style="width: 65%;">MATH 2443* Calculus & Analytic Geometry IV</td><td style="width: 10%; text-align: center;">3</td><td style="width: 10%;"></td></tr> <tr><td></td><td>*Math 2934 may also be used to meet this requirement</td><td></td><td></td></tr> <tr><td></td><td>MATH 3413 Physical Math I</td><td style="text-align: center;">3</td><td></td></tr> </table> <p style="text-align: center;">Free Electives</p> <p>Electives to bring total applicable hours to 120 including 48 upper-division hours.</p>		MATH 2443* Calculus & Analytic Geometry IV	3			*Math 2934 may also be used to meet this requirement				MATH 3413 Physical Math I	3	
2513	Introductory Astrophysics	3																																																																																
3103	Stars	3																																																																																
3113	Galaxies and Cosmology	3																																																																																
4303	Stellar Astrophysics	3																																																																																
1205	Introductory Physics I for Physics Majors	5																																																																																
1215	Introductory Physics II for Physics Majors	5																																																																																
2203	Intro. Physics III: Modern Physics	3																																																																																
3043	Physical Mechanics I	3																																																																																
3053	Physical Mechanics II	3																																																																																
3183	Electricity & Magnetism I	3																																																																																
3302	Advanced Laboratory I, or																																																																																	
3312	Advanced Laboratory II	2																																																																																

3803	Introduction to Quantum Mechanics I	3																																																																																
4153	Statistical Physics & Thermodynamics	3																																																																																
4300	Senior Research Project (Senior Capstone Course)	2																																																																																
4300	Senior Research Project (2 enrollments required)	2																																																																																
	MATH 2443* Calculus & Analytic Geometry IV	3																																																																																
	*Math 2934 may also be used to meet this requirement																																																																																	
	MATH 3413 Physical Math I	3																																																																																

INFORMATION CONCERNING GENERAL RULES, REGULATIONS AND MINIMUM REQUIREMENTS

TOTAL HOURS: A minimum of 120 semester hours acceptable toward graduation must be completed.

UPPER-DIVISION HOURS: A minimum of 48 upper-division semester hours acceptable toward graduation must be completed. OU courses numbered 3000 or above are upper-division. Transfer work is counted as lower-division or upper-division credit depending on the level at which it was offered at the institution where it was earned. Two-year college work is accepted only as lower-division credit.

ARTS AND SCIENCES HOURS: At least 80 semester hours of liberal arts and sciences courses are required for a BA degree. At least 55 semester hours of liberal arts and sciences courses are required for a BS degree.

MAJOR WORK: A minimum of 30 semester hours must be earned in the major, including a minimum of 15 credit hours at the upper-division level.

PASS/NO PASS ENROLLMENT: A maximum of 16 semester hours of free elective credit may be attempted under this option.

INDIVIDUAL STUDIES (e.g., courses titled "Independent Study"): A maximum of 12 total semester hours may be counted toward graduation, excluding Honors Reading and Honors Research.

P.E. COURSES: No physical education activity courses will be counted toward the 120 semester hours of acceptable credit for graduation.

SENIOR INSTITUTION HOURS: A minimum of 60 semester hours applied toward graduation must be earned at senior (4-year) institutions.

RESIDENCY:

- At least 15 of the final 30 hours applied toward the degree or at least 50 percent of the hours required by the institution in the major field must be satisfactorily completed at the awarding institution.
- At least 15 semester hours of upper-division major work must be completed in residence at OU.
- OU correspondence courses are *not* considered resident credit.
- Credits earned via examination are neither resident nor nonresident credit.

GRADEPOINT AVERAGES: Students must earn a minimum overall 2.00 for each of the following: Combined Retention GPA (all college grades), OU Retention GPA, GPA for all major courses, and GPA for all major courses taken at OU. Some schools and departments of the College have higher minimum grade point averages required for their students.

SPECIAL DEGREES: Students may qualify for an Honors degree (cum Laude, Magna cum Laude, or Summa cum Laude) by completing specific requirements of the Honors College. A degree will be earned with Distinction if the student completes at least 60 semester hours at OU with at least a 3.60 combined retention GPA and OU retention GPA. A degree will be earned with Special Distinction if the student completes at least 60 semester hours at OU with at least a 3.90 combined retention GPA and OU retention GPA.

APPLICATION FOR GRADUATION: Students must apply for graduation during the term in which they complete their degree requirements in order to graduate in that term. The graduation application is available on line on your Ozone site. Deadlines for the OU Graduation Application are: **March 1** for Spring certification and the University of Oklahoma Commencement book; **July 1** for Summer graduation certification; and, **October 1** for Fall graduation certification.

Refer to the OU General Catalog for more complete information.

Suggested Semester Plan of Study — Astrophysics - B082

This plan shows one possible grouping of courses that would allow students to graduate in four years. Please refer to the front of the degree checksheet for official requirements. Students must consult with College of Arts and Sciences and/or Department of Physics and Astronomy academic advisers to verify that courses selected each semester fulfill the recommended plan and satisfy university, College of Arts and Sciences, and Astrophysics major requirements.

Year	FIRST SEMESTER	Hours	SECOND SEMESTER	Hours
FRESHMAN	ENGL 1113, Principles of English Composition (Core I)	3	ENGL 1213, Principles of English Composition (Core I), or	3
	MATH 1823, Calculus & Analytic Geometry I (Core I)	3	EXPO 1213, Expository Writing (Core I)	3
	PHYS 1205, Introductory Physics I for Physics Majors	5	MATH 2423, Calculus & Analytic Geometry II	3
	Beginning Foreign Language (Core I)	5	PHYS 1215, Intro. Physics II for Physics Majors	5
			Beginning Foreign Language continued (Core I)	5
	TOTAL CREDIT HOURS	16	TOTAL CREDIT HOURS	16
SOPHOMORE	ASTR 2513, Introductory Astrophysics	3	HIST 1483, United States 1492-1865, or	3
	MATH 2433, Calculus & Analytic Geometry III	3	1493, United States 1865-Present (Core IV)	3
	PHYS 2203, Intro. Physics III: Modern Physics	3	MATH 2443, Calculus & Analytic Geometry IV	3
	Biological Science without lab (Core II)	3	MATH 3413, Physical Mathematics I	3
	Intermediate Foreign Language	3	PHYS 3043, Physical Mechanics I	3
			Social Science (Core III)	3
	TOTAL CREDIT HOURS	15	TOTAL CREDIT HOURS	15
JUNIOR	ASTR 3103, Stars	3	ASTR 3113, Galaxies and Cosmology	3
	P.S.C. 1113, American Federal Government (Core III)	3	PHYS 3302, Advanced Laboratory I, or	2
	PHYS 3053, Physical Mechanics II	3	3312, Advanced Laboratory II	3
	PHYS 3183, Electricity and Magnetism I Understanding	3	PHYS 3803, Intro. to Quantum Mechanics I	3
	Artistic Forms (Core IV)	3	Western Civilization & Culture (Core IV)	3
			Free Elective, upper-division (3000-4000-level)	3
	TOTAL CREDIT HOURS	15	TOTAL CREDIT HOURS	14
SENIOR	ASTR 4303, Stellar Astrophysics	3	PHYS 4300, Senior Research Project (Capstone)	2
	PHYS 4153, Statistical Mechanics	3	Astrophysics Major Elective, upper-division (3000-4000-level)	3
	PHYS 4300, Senior Research Project (Capstone)	2	Humanities, upper-division, outside major (Gen. Ed.)	3
	Humanities, upper-division, outside major (Gen. Ed.)	3	Free Elective, lower- or upper-division	2
	Non-Western Culture (Core IV)	3	Free Elective, lower- or upper-division	3
			Free Elective, upper-division (3000-4000-level)	3
	TOTAL CREDIT HOURS	14	TOTAL CREDIT HOURS	16

Bachelor's degrees require a minimum of 48 hours of upper-division (3000-4000) coursework.

This plan of study should not be used in lieu of academic advisement.

Students who transfer from other institutions (particularly community colleges) must verify credit hour and course requirements with their college academic counselor, ELLH 124, 325-4411, <http://ou.edu/cas>.

Please make an appointment for a degree check with your college academic counselor once you have earned 90 hours. Appointments may be scheduled at <https://iadvise.ou.edu/>.