

REQUIREMENTS FOR THE BACHELOR OF SCIENCE
DODGE FAMILY COLLEGE OF ARTS AND SCIENCES
THE UNIVERSITY OF OKLAHOMA

| Academic Year |
|---------------------------------------------------------------------------------------------------------|
| For Students Entering the Oklahoma State System for Higher Education Summer 2024 through Spring 2025 |

| General Requirements | |
|-----------------------------------------------------------|------|
| Minimum Total Credit Hours | 120 |
| Minimum Upper-Division Hours | 48 |
| Major Hours | 50 |
| Minimum Retention/Graduation Grade Point Averages: | |
| Overall - Combined and OU | 2.00 |
| Major - Combined and OU | 2.00 |

| Program |
|---------------------|
| Astrophysics |
| B082 |
| Bachelor of Science |

OU encourages students to complete at least 30 hours of applicable coursework each year to have the opportunity to graduate in 4 years.

GENERAL EDUCATION AND COLLEGE REQUIREMENTS

Courses for fulfillment of General Education and Dodge 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/gened/courses>. Courses graded P/NP will not apply.

UNIVERSITY-WIDE GENERAL EDUCATION (MINIMUM 40 HOURS) AND COLLEGE REQUIREMENTS

| Code | Title | Credit Hours |
|------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|
| Core Area I: Symbolic and Oral Communication | | |
| <i>English Composition (6 hours)</i> | | |
| ENGL 1113 | Principles of English Composition | 3 |
| ENGL 1213 | Principles of English Composition | 3 |
| or EXPO 1213 | Expository Writing | |
| <i>Language (0-13 hours in the same language)</i> | | |
| The college requirement cannot be met by high school coursework. | | |
| | Beginning Course | 0-5 |
| | Beginning Course, continued | 0-5 |
| | Intermediate Course (2000 level) ^{1,2} | 0-3 |
| <i>Mathematics (3 hours)</i> | | |
| | Choose one course from the General Education Mathematics list | 3 |
| Core Area II: Natural Science (7 hours, including one laboratory component) | | |
| <i>Biological Science</i> | | |
| | Choose an approved General Education Natural Science course with one of the following prefixes: BIOL, HES, MBIO, or PBIO ¹ | 3-4 |
| <i>Physical Science</i> | | |
| | Choose an approved General Education Natural Science course with one of the following prefixes: AGSC, ASTR, CHEM, GEOG, GEOL, GPHY, METR, or PHYS ¹ | 3-4 |
| Core Area III: Social Science (6 hours) | | |
| P SC 1113 | American Federal Government | 3 |
| | Choose one course from the General Education Social Science list | 3 |
| Core Area IV: Arts and Humanities (18 hours) | | |
| <i>Artistic Forms</i> | | |
| | Choose one course from the General Education Artistic Forms list | 3 |
| <i>Western Culture</i> | | |
| HIST 1483 | United States to 1865 | 3 |
| or HIST 1493 | United States, 1865 to the Present | |
| | Choose one course from the General Education Western Culture list (excluding HIST 1483/1493) | 3 |
| <i>World Culture</i> | | |
| | Choose one course from the General Education World Culture list | 3 |
| <i>Additional Core IV Upper-Division Arts & Humanities courses</i> | | |
| | Choose one course from Artistic Forms, Western Culture, or World Culture ^{1,3} | 3 |
| | Choose one course from Artistic Forms, Western Culture, or World Culture ^{1,3} | 3 |
| Core Area V: First Year Experience (3 hours) | | |
| | Choose one course | 3 |
| Total Credit Hours | | 56 |

- ¹ College of Arts and Sciences Requirements: college requirements are not automatically fulfilled by a previous degree.
- ² One course at the intermediate level or demonstrated competency at that level
- ³ 6 upper-division hours, 2 courses, at the 3000- 4000-level. *Must be outside the major.*

FREE ELECTIVES

Electives to bring total applicable hours to the minimum total required for the degree including 48 upper-division hours.

- Some courses required for the major may also fulfill University General Education and/or Dodge College of Arts & Sciences Requirements.
- A grade of C or better must be earned in each required Astronomy and Physics course and in the required Mathematics courses.

MAJOR REQUIREMENTS

| Code | Title | Credit Hours |
|---------------------------|--------------------------------------------------------------|--------------|
| Astronomy | | |
| ASTR 2513 | Introductory Astrophysics | 3 |
| ASTR 3103 | Stars | 3 |
| ASTR 3113 | Galaxies and Cosmology | 3 |
| ASTR 4303 | Stellar Astrophysics | 3 |
| ASTR 4523 | Advanced Observatory Methods | 3 |
| Physics | | |
| PHYS 1205 | Introductory Physics I for Physics Majors | 5 |
| PHYS 1215 | Introductory Physics II for Physics Majors | 5 |
| PHYS 2203 | Introductory Physics III: Modern Physics | 3 |
| PHYS 3043 | Physical Mechanics I | 3 |
| PHYS 3053 | Physical Mechanics II | 3 |
| PHYS 3183 | Electricity and Magnetism I | 3 |
| PHYS 3803 | Introduction to Quantum Mechanics I | 3 |
| PHYS 4153 | Statistical Physics and Thermodynamics | 3 |
| PHYS 4310 | Senior Research Project I | 2 |
| PHYS 4320 | Senior Research Project II | 2 |
| | Choose one of the following: | 3 |
| MATH 3423 | Physical Mathematics II | |
| PHYS 4183 | Electricity and Magnetism II (strongly recommended) | |
| PHYS 4803 | Introduction to Quantum Mechanics II (strongly recommended) | |
| | An astronomy course at the 5000-level (strongly recommended) | |
| Total Credit Hours | | 50 |

MAJOR SUPPORT REQUIREMENTS

| Code | Title | Credit Hours |
|---------------------------|-----------------------------------------------------|--------------|
| MATH 1914 | Differential and Integral Calculus I ¹ | 4 |
| MATH 2924 | Differential and Integral Calculus II ¹ | 4 |
| MATH 2934 | Differential and Integral Calculus III ¹ | 4 |
| MATH 3413 | Physical Mathematics I | 3 |
| Total Credit Hours | | 15 |

- ¹ MATH 1823, MATH 2423, MATH 2433, and MATH 2443 may also be used to meet the Calculus sequence requirement.

More information in the catalog: (<http://ou-public.courseleaf.com/dodge-arts-sciences/dodge-physics-astronomy/astrophysics-bachelor-science/>).

INFORMATION CONCERNING GENERAL RULES, REGULATIONS AND MINIMUM REQUIREMENTS

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.

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.

Grade Point Averages: Students must earn a minimum over all 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.

SUGGESTED SEMESTER PLAN OF STUDY

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 Dodge College of Arts and Sciences and/or Department of Physics and Astronomy academic advisors 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 or EXPO 1213 | Principles of English Composition (Core I) or Expository Writing | 3 |
| | MATH 1914 | Differential and Integral Calculus I ¹ | 4 | MATH 2924 | Differential and Integral Calculus II ¹ | 4 |
| | PHYS 1205 | Introductory Physics I for Physics Majors | 5 | PHYS 1215 | Introductory Physics II for Physics Majors | 5 |
| | | First Year Experience (Core V) | 3 | | Beginning Language (Core I) | 5 |
| | CREDIT HOURS | | 15 | CREDIT HOURS | | 17 |
| SOPHOMORE | ASTR 2513 | Introductory Astrophysics | 3 | HIST 1483 or HIST 1493 | United States to 1865 (Core IV) or United States, 1865 to the Present | 3 |
| | MATH 2924 | Differential and Integral Calculus II ¹ | 4 | MATH 3413 | Physical Mathematics I | 3 |
| | PHYS 2203 | Introductory Physics III: Modern Physics | 3 | PHYS 3043 | Physical Mechanics I | 3 |
| | | Beginning Language (continued) (Core I) | 5 | | Social Science (Core III) ² | 3 |
| | | | | | Intermediate Language (Core I) | 3 |
| | CREDIT HOURS | | 15 | CREDIT HOURS | | 15 |
| JUNIOR | ASTR 3103 | Stars | 3 | ASTR 3113 | Galaxies and Cosmology | 3 |
| | P SC 1113 | American Federal Government (Core III) | 3 | ASTR 4523 | Advanced Observatory Methods | 3 |
| | PHYS 3053 | Physical Mechanics II | 3 | PHYS 3803 | Introduction to Quantum Mechanics I | 3 |
| | PHYS 3183 | Electricity and Magnetism I | 3 | | Western Culture (Core IV) ² | 3 |
| | | Artistic Forms (Core IV) ² | 3 | | Biological Science without lab (Core II) | 3 |
| | CREDIT HOURS | | 15 | CREDIT HOURS | | 15 |
| SENIOR | ASTR 4303 | Stellar Astrophysics | 3 | PHYS 4320 | Senior Research Project II | 2 |
| | PHYS 4153 | Statistical Physics and Thermodynamics | 3 | | Astrophysics Major Elective, upper-division (3000-4000-level) | 3 |
| | PHYS 4310 | Senior Research Project I | 2 | | Arts & Humanities, upper-division, outside major (Gen. Ed.) | 3 |
| | | Arts & Humanities, upper-division, outside major (Gen. Ed.) | 3 | | Free Elective, lower- or upper-division | 3 |
| | | World Culture (Core IV) ² | 3 | | Free Elective, upper-division (3000-4000-level) | 3 |
| | CREDIT HOURS | | 14 | CREDIT HOURS | | 14 |

¹ Students may substitute MATH 1823, MATH 2423, MATH 2433 and MATH 2443 calculus sequence instead of MATH 1914, MATH 2924, and MATH 2934.

² Additional upper-division General Education may be required to complete the 48 hour upper-division requirement.