Big data is changing the world. Offered through the Department of Mathematics, this degree prepares you to take part in the data revolution. Students earning a Bachelor of Science or Bachelor of Arts in Statistics and Data Science will have a solid foundation in mathematics. Yet they focus on the capture, maintenance, processing, analysis and communication of data through immersion in courses in probability, statistics, data science and computer programming. Undergraduates also must complete a minor outside the Department of Mathematics. The B.A. and B.S. allow students to pursue graduate degrees or careers in analytics, risk assessment, finance, and other math- and science-related fields.

**LEARNING OUTCOMES**
- Apply methods and concepts from their coursework to analyze data based scientific problems
- Be able to define mathematical and statistical terms precisely
- Critically evaluate and extend statistical models drawn from current scientific literature
- Effectively communicate their results
- Produce effective analyses from data using a variety of computational, mathematical, and statistical approaches
- Recognize when arguments, especially formal statistical procedures and data visualization, are valid, and identify logical flaws

**Undergraduate Graduation Requirements**
All course work and requirements for this degree must be completed prior to the date the degree is awarded. The University of Arizona requirements to follow in this audit are required for graduation and awarding of the degree.

Curriculum:
1. The University of Arizona and the Arizona Board of Regents have sole discretion over all curricula changes.
2. Courses, programs & requirements may be suspended, deleted, restricted, or changed in any manner, at any time.
3. Students must remain currently informed about all policies & other info that bears on completing a degree.

Required Units:
Additional units will be required to complete this degree if a student:
A) is admitted to the UA with deficiencies;
B) changes their academic plan(s);
C) fails to meet minimum course/plan requirements;
D) ineffectively plans or fails to execute a course of study that leads directly to degree completion; or
E) Candidates for a second bachelor's degree at The University of Arizona with a different award date than the first must earn no fewer than 30 units of University Credit in addition to the units required for the first degree, and must meet all requirements for the second degree.

The following requirements must be met for graduation.

**Units Required and Cumulative GPA**
120 units are required at a 2.0 GPA. View the pdf report grid for units earned toward this degree and cumulative GPA.

Completing a second bachelor's degree at The University of Arizona requires no fewer than 30 units in addition to the units required for the first degree, and all requirements for the second degree must be met.

**Upper Division Units**
Not Satisfied: A minimum of 42 units of upper-division credit are required for this degree.
- Units: 42.00 required, 0.00 completed, 42.00 needed

**Units in Residence**
Not Satisfied: A minimum of 30 units in residence at The University of Arizona (excluding correspondence credit and credit by exam) is required.
· **Units**: 30.00 required, 0.00 completed, 30.00 needed

**Upper Division Units in Residence**  
**Not Satisfied**: A minimum of 18 units of upper division credit in residence at the University of Arizona (excluding correspondence credit and credit by exam) is required.  
· **Units**: 18.00 required, 0.00 completed, 18.00 needed

**Correspondence and/or Exam Credit Limit**  
**Satisfied**: A maximum of 60 units of Correspondence Credit and/or Exam Credit may apply toward graduation.  
· **Units**: 0.00 completed

**Non Degree Seeking Limit**  
A maximum of 15 units completed as a non-degree seeking student may be used for fulfilling undergraduate degree requirements.  
Units exceeding this limit (shown below) must be subtracted from the units required towards the degree and graduation requirements.

**Non-Community College Units**  
**Not Satisfied**: Non-Community College Units: While there is no limit to the total number of units of course work that may be transferred from an accredited community college to The University of Arizona, no more than 64 units from a 2-year institution may be applied toward the requirements for a bachelor's degree. Therefore, to reach the required 120 units for a bachelor's degree, a minimum of 56 units must be completed from 1) coursework at a 4-year institution, 2) approved credit by examination (refer to UA Catalog for approved examinations and scores), or 3) any combination thereof.  
· **Units**: 56.00 required, 0.00 completed, 56.00 needed

**Success Course Limit**  
**Satisfied**: No more than 3 units will apply toward a student's graduation requirements.  
All Success courses taken can be seen below. Success Course units exceeding the 3 unit maximum must be subtracted from the total units, residency requirements and cumulative grade point average.

**PE Activity Course Limit**  
**Satisfied**: No more than 3 units will apply toward a student's graduation requirements.  
All PE activity courses taken can be seen below. PE Activity units exceeding the 3 unit maximum must be subtracted from the total units, residency requirements and cumulative grade point average.

**General Education Entry Course**  
**Not Satisfied**: General Education Entry Course
**Introduction to General Education course**

**Not Satisfied:** Introduces students admitted to the university as First-Year students to General Education, reflecting on learning, and developing an ePortfolio. (1 unit)

- **Units:** 1.00 required, 0.00 completed, 1.00 needed

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**Courses Available**

**UNIV 101**

**General Education Foundation Mathematics**

**Not Satisfied:** General Education Foundation Mathematics

**GE Substantial Math Strand**

**Not Satisfied:** Complete 1 course.

**GE Substantial Math Strand**

**Not Satisfied:** Complete 1 course.

- **Units:** 2.67 required, 0.00 completed, 2.67 needed

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**Courses Available**

**MATH 122B, MATH 125, MATH 129, MATH 215, MATH 223, MATH 254, MATH 313**

**General Education Foundation Composition & Second Language**

**Overall Requirement Not Satisfied:** Undergraduate General Education Foundation Composition & Second Language

**Foundation Composition**

**Not Satisfied:** Complete 1 of the following 4 Foundation Composition options:

1. 3 Course Foundation Composition Sequence
2. 2 Course Foundation Composition Sequence
3. Honors Composition with grade of C or higher
4. Honors Composition with a grade of D and Second Semester Composition.

Please note: Students who earn a grade of D in Honors Composition may choose to repeat the course in order to earn a higher grade to satisfy the requirement. Please consult with your major advisor.

Mid-Career Writing Assessment - Complete 2nd semester English Composition with a B grade or higher. Students who do not earn a grade of B or better in 2nd semester English Composition must also satisfy a college or department writing requirement. Consult your major advisor if you do not earn a grade of B in 2nd semester English Composition.

**Option 1: Foundation Composition - 3 Course Sequence**

**Not Satisfied:** Complete 3 courses. Complete ENGL 106 AND ENGL 101/107 AND ENGL 102/108.

- **Courses:** 3.00 required, 0.00 completed, 3.00 needed
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**Courses Available**

ENGL 1EB, ENGL 101, ENGL 101A, ENGL 107, ENGL 107A, (***) (###), ENGL 102, ENGL 108, ENGL 106

**OR Option 2: Foundation Composition - 2 Course Sequence**

*Not Satisfied:* Complete 2 courses. Complete ENGL 101/107 AND ENGL 102/108

- **Courses:** 2.00 required, 0.00 completed, 2.00 needed

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**Courses Available**

ENGL 1EB, ENGL 101, ENGL 101A, ENGL 107, ENGL 107A, (***) (###), ENGL 102, ENGL 108

**OR Option 3: Honors Composition**

*Not Satisfied:* Complete 1 course with a C or better.

- **Courses:** 1.00 required, 0.00 completed, 1.00 needed

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**Foundation Second Language - Second Semester Proficiency**

*Not Satisfied:* Credit will not be given for a course at an equivalent or lower level than prior language credit earned. Course must be taken for a grade, not as pass/fail. Third semester or higher courses used to fulfill this requirement may also be used to fulfill other requirements. A grade of C or higher is required in the course that satisfies the second language requirement.

Demonstrate second semester proficiency in a second language by completing a sequence of courses through a second semester or higher level or by passing a language proficiency examination at the second semester level or higher.

**Second Semester Language Course**

*Not Satisfied:* Complete 1 course with a grade of C or better.


- **Courses:** 1.00 required, 0.00 completed, 1.00 needed
Courses Available
AIS 104B, AIS 307B, ARB 102, CHN 102, CRL 102, FREN 102, FREN 112, GER 102, GRK 102, GRK 104, GRK 112, ITAL 102, ITAL 102Z, JPN 102, KOR 102, LAS 305A, LAT 102, LAT 112, LING 104B, LING 307B, MENA 103B, PORT 102, PORT 305A, PORT 325A, PRS 102, RSSS 102, SERP 370B, SPAN 102, SPAN 103, SPAN 205, TURK 102

General Education Core Requirements
Overall Requirement Not Satisfied: General Education Core Requirements

GE Exploring Perspectives
Overall Requirement Not Satisfied: Choose one course from each category.

Artist Courses
Not Satisfied: Complete 1 course, 3 units total. Transfer students with quarter system credits may satisfy requirement with 1 course and 2.67 units.
- Units: 2.67 required, 0.00 completed, 2.67 needed
- Courses: 1.00 required, 0.00 completed, 1.00 needed

Humanist Courses
Not Satisfied: Complete 1 course, 3 units total. Transfer students with quarter system credits may satisfy requirement with 1 course and 2.67 units.
- Units: 2.67 required, 0.00 completed, 2.67 needed
- Courses: 1.00 required, 0.00 completed, 1.00 needed
### Natural Scientist Courses

**Not Satisfied:** Complete 1 course, 3 units total. Transfer students with quarter system credits may satisfy requirement with 1 course and 2.67 units.

- **Units:** 2.67 required, 0.00 completed, 2.67 needed
- **Courses:** 1.00 required, 0.00 completed, 1.00 needed

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### Courses Available

AGTM 170A1, ANTH 160D2, ANTH 170C1, ANTH 261, ASTR 170B1, ASTR 206, ATMO 170A1, BE 170A1, BE 170A2, CHEM 151, CHEM 152, CHEM 161, CHEM 162, ECOL 170C1, ECOL 170C2, ENV3 170A1, ESOC 210, GC 170A1, GEOG 230, GEOS 170A1, GEOS 212, GEOS 218, GEOS 220, HWR3 170A1, MSE 220, NSC 170C1, NSC 375, PHYS 141, PHYS 161H, PLS 170C1, PLS 170C2, PLS 307, PTYS 206, RNR 170C1

### Social Scientist Courses

**Not Satisfied:** Complete 1 course, 3 units total. Transfer students with quarter system credits may satisfy requirement with 1 course and 2.67 units.

- **Units:** 2.67 required, 0.00 completed, 2.67 needed
- **Courses:** 1.00 required, 0.00 completed, 1.00 needed

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### Courses Available

AED 150A1, AED 408, AFAS 260, AFAS 280, AFAS 376, ANTH 150A1, ANTH 150B1, ANTH 160A1, ANTH 280, ANTH 317, ANTH 339, AREC 210, AREC 217, CLAS 160D3, ECON 200, EDP 150B1, EDP 200, ENGL 160D1, ENGL 322, FIN 150C1, FITS 204, FREN 150B1, FREN 150C1, GEOG 150B2, GEOG 222, GEOG 250, GEOG 367, GER 150A1, GER 244, GWS 252, GWS 448, GWS 459, HDFS 200, HED 350, HIST 150C1, HIST 150C2, HIST 150C3, HIST 252, HIST 307, HNRS 219, HPS 178, HPS 200, HUMS 376, ITAL 150B1, ITAL 150C1, ITAL 160B1, ITAL 160D1, ITAL 160B1, LAS 150B1, LAS 150B2, LAS 204, LAS 230, LAS 280, LAS 312, LAS 317, LAW 389, LING 320, LING 322, MAS 150B2, MAS 150C1, MAS 317, MAS 365, PA 241, PA 312, PHP 150C, PHP 308, POL 202, POL 204, POL 312, PORT 280, PPEL 210, PSY 101, PSY 150A1, PSY 200, SERP 200, SERP 416, SOC 150B1, SOC 150C2, SOC 222, SOC 241, SOC 260, SOC 324, SOC 325, SOC 367, SOC 448, SOC 459, SPAN 280, TLS 150B1, TLS 150C1, TLS 310, TLS 331

### GE Building Connections

**Not Satisfied:** Building Connections brings together knowledge and modes of thinking from two or more disciplines and/or perspectives. Choose three courses (9 units minimum).

### Building Connections Courses

**Not Satisfied:** Complete 3 courses, 9 units total. Transfer students with quarter system credits may satisfy requirements with 3 courses and 8.01 units.

- **Units:** 8.01 required, 0.00 completed, 8.01 needed
- **Courses:** 3.00 required, 0.00 completed, 3.00 needed

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Courses Available

ACBS 160D1, AED 150C1, AED 210, AFAS 208, AFAS 335, AFAS 371, AIS 210, ANTH 150C1, ANTH 201, APAS 205,
APAS 260, ARC 160D1, ARC 220, AREC 150C3, AREC 365, ART 150B1, ART 160D3, ART 360, ASTR 214, ASTR
333, BSM 201, CE 301, CHS 202, CLAS 150C1, CLAS 160B1, CLAS 240, CLAS 305, CLAS 346, EAS 201, EAS 270,
EAS 359, ECON 150C1, ECON 205, ENGL 150B2, ENGL 160A2, ENGL 307, ENGL 308, ENGL 347, ENGR 422, ENTO
160D1, ENV 210, ENV 310, ESOC 150C3, FCN 201, FREN 230, FREN 231, GEOG 210, GEOG 256, GEOS 214,
GEOS 222, GER 114, GER 150B1, GER 160A1, GER 160D2, GWS 150B1, GWS 150B2, GWS 150B4, GWS
160C1, GWS 200, GWS 240, GWS 242, GWS 260, GWS 317, GWS 321, HDFS 150B1, HED 242, HED 397C, HIST
150C4, HIST 160B2, HIST 160D1, HIST 208, HIST 246, HIST 247, HIST 270, HIST 362A, HIST 377, HNRS 150B2,
HNRS 150C1, HNRS 160D4, HNRS 170A1, HNRS 203H, HNRS 212, HNRS 218, HNRS 302, HNRS 314, HPS 150C1,
HPS 300, HPS 387, HRTS 200, HSD 497, HUMS 205, ISTA 263, ITAL 230, ITAL 231, ITAL 240, ITAL 250D, JOUR
150C1, JOUR 305, JPN 362A, JUS 160D1, JUS 321, JUS 332, JUS 377, JUS 384, LAW 150B1, LAW 350, LAS 335,
LAW 360, LING 114, LING 150A1, LING 150C1, LING 210, LING 211, MENA 160A2, MENA 342, MENA 377, MIS
150B1, MNE 201, MNE 422, MUS 231, MUS 334, MUS 335, NAFS 365, NCS 310, NCS 352, PA 205, PA 322, PAH
150B1, PAH 160D1, PAH 160D3, PAH 160D5, PAH 201, PAH 230, PAH 231, PAH 240, PAH 260, PAH 310, PAH 320,
PAH 331, PAH 350, PAH 372, PFFP 150B2, PHI 205, PHI 211, PHI 323, PWS 205, PLG 202, PLG 211, PLG 256,
POL 209, POL 377, PPEL 205, PPEL 323, PRS 342, PSY 240, PTYS 212, PTYS 214, RCSC 150B1, RCSC 250, RELI
150B1, RELI 160D5, RELI 203, RELI 227, RELI 235, RELI 305, RELI 321, RELI 332, RELI 335, RELI 342, RELI 350,
RELI 359, RELI 363, RELI 367, RELI 379, RNR 150C1, RNR 160D1, RNR 240, RNR 256, RSSS 114, RSSS 160D1,
RSSS 212, RSSS 280, RSSS 305, RSSS 306, RSSS 335, SGPP 394, SOC 150B2, SOC 202, SOC 320, SPAN
160D1, SPAN 210, TLS 240, TLS 353, WFSC 223

GE 32 unit check

Not Satisfied: Students must complete 32 units in General Education coursework while satisfying the requirements.

Check for 32 units of GE

Not Satisfied: Students must complete 32 units in General Education coursework while satisfying the requirements.

- Units: 32.00 required, 0.00 completed, 32.00 needed

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General Education Portfolio

Not Satisfied: General Education Portfolio (Exit Course)

General Education Portfolio - Exit Course

Not Satisfied: Students admitted to the university as First-Year students reflect on their General Education experience and complete their ePortfolio in the GE Capstone course. (1 unit)

- Units: 1.00 required, 0.00 completed, 1.00 needed
Courses Available

UNIV 301

Additional Coursework
Courses listed in this section may include general elective credits, UA courses and transferable courses from other institutions. Consult with your advisor to determine if courses listed in this section may be used to fulfill a requirement or sub-requirement in your degree program.

Courses taken for Pass/Fail option can only count as elective credit. They cannot fulfill any General Education, Major, or Minor requirements.

BS in Statistics and Data Science

Overall Requirement Not Satisfied: Will appear fully satisfied when student satisfies Statistics and Data Science Supporting Laboratory Science Coursework, Statistics and Data Science Supporting Computer Science, and Statistics and Data Science Major Core Requirements.

The Bachelor of Science in Statistics and Data Science requires the same Core major courses as the BA; BS students must satisfy supporting laboratory science requirements.

Statistics and Data Science Supporting Laboratory Science Coursework

Overall Requirement Not Satisfied: Will appear fully satisfied when student has satisfied two of the approved laboratory science courses.

Students seeking a BS in Statistics and Data Science must complete 2 of the following requirements. Choose from Chemistry, Physics, Biology, Physiology, and/or Geosciences.

Courses used to fulfill this requirement may also be used to fulfill other requirements.

First Semester General Chemistry

Not Satisfied: Complete 4 units from CHEM 141 & (143 or 145), 151, 161 & 163, or 181

· Units: 4.00 required, 0.00 completed, 4.00 needed

Courses Available

CHEM 141, CHEM 143, CHEM 145, CHEM 151, CHEM 161, CHEM 163, CHEM 181, Approved Transfer Course

Second Semester General Chemistry

Not Satisfied: Complete 4 units from CHEM 142 & (144 or 146), 152, 162 & 164, or 182

· Units: 4.00 required, 0.00 completed, 4.00 needed
## Courses Available

CHEM 142, CHEM 144, CHEM 146, CHEM 152, CHEM 162, CHEM 164, Approved Transfer Course

**Geosciences**  
**Not Satisfied:** Complete 1 course  
- **Courses:** 1.00 required, 0.00 completed, 1.00 needed

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## Courses Available

GEOS 251

**Geosciences**  
**Not Satisfied:** Complete 1 course  
- **Courses:** 1.00 required, 0.00 completed, 1.00 needed

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## Courses Available

GEOS 255, GEOS 302, GEOS 304, GEOS 308, GEOS 322

**Introductory Biology I**  
**Not Satisfied:** Complete 4 units of lecture and lab  
- **Units:** 4.00 required, 0.00 completed, 4.00 needed

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## Courses Available

MCB 181L, MCB 181R, Approved Transfer Course, MCB 184

**Introductory Biology II**  
**Not Satisfied:** Complete 4 units of lecture and lab  
- **Units:** 4.00 required, 0.00 completed, 4.00 needed

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Courses Available

ECOL 182L, ECOL 182R, Approved Transfer Course

Human Anatomy and Physiology I
Not Satisfied: Complete 4 units

- Units: 4.00 required, 0.00 completed, 4.00 needed

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Courses Available

PSIO 201

Human Anatomy and Physiology II
Not Satisfied: Complete 4 units

- Units: 4.00 required, 0.00 completed, 4.00 needed

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Courses Available

PSIO 202

Introductory Mechanics
Not Satisfied: Complete Introductory Mechanics Lecture with Lab

- Units: 4.00 required, 0.00 completed, 4.00 needed

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Courses Available

PHYS 139, PHYS 140, PHYS 141, PHYS 161H

Intro Optics and Thermodynamics
Not Satisfied: Complete Introductory Thermodynamics & Optics with Lab

- Units: 4.00 required, 0.00 completed, 4.00 needed

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<td>Courses Available</td>
<td>PHYS 142, PHYS 162H</td>
<td>Introductory Electricity and Magnetism with Lab</td>
<td><strong>Not Satisfied:</strong> Complete Introductory Electricity and Magnetism with Lab</td>
<td><strong>Units:</strong> 4.00 required, 0.00 completed, 4.00 needed</td>
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<td>Courses Available</td>
<td>PHYS 239, PHYS 240, PHYS 241, PHYS 261H</td>
<td>Statistics and Data Science Supporting Computer Science</td>
<td><strong>Not Satisfied:</strong> Will appear fully satisfied when student satisfies Computer Science requirements.</td>
<td>Courses used to fulfill this requirement may also be used to fulfill other requirements.</td>
<td><strong>Python Programming Course</strong></td>
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<td>Courses Available</td>
<td>CSC 110, CSC 120, CSC 250, ISTA 130</td>
<td>Statistics and Data Science Data Management Requirement</td>
<td><strong>Not Satisfied:</strong> Will appear fully satisfied when student has satisfied 1 approved Data Management/SQL course.</td>
<td>Courses used to fulfill this requirement may also be used to fulfill other requirements.</td>
<td><strong>Data Management/SQL Course</strong></td>
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Statistics and Data Science Core Requirements

Overall Requirement Not Satisfied: Will appear full satisfied when student satisfies Calculus I, Calculus II & Vector Calculus, Linear Algebra, Core Courses, and Major Elective.

**Calculus I**

Not Satisfied: Complete 1 course

- Courses: 1.00 required, 0.00 completed, 1.00 needed

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**Courses Available**

MATH 122B, MATH 125

**Calculus II & Vector Calculus**

Not Satisfied: Complete 2 courses

- Courses: 2.00 required, 0.00 completed, 2.00 needed

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**Courses Available**

MATH 129, MATH 223

**Linear Algebra**

Not Satisfied: Complete 1 course

- Courses: 1.00 required, 0.00 completed, 1.00 needed

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**Core Courses**

Not Satisfied: Complete 6 courses. Credit allowed for only one course: DATA 363 or MATH 363.

- Courses: 6.00 required, 0.00 completed, 6.00 needed

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Courses Available

DATA 363, DATA 375, DATA 467, DATA 498A, MATH 363, MATH 464, MATH 466

Major Elective

Not Satisfied: Complete 1 course

· Courses: 1.00 required, 0.00 completed, 1.00 needed

Courses Available

DATA 367, DATA 396T, DATA 412, DATA 462, DATA 468, DATA 496T, DATA 498H, MATH 412, MATH 462, MATH 468, SIE 440

Statistics and Data Science Graduation Requirements

Overall Requirement Not Satisfied: Will appear fully satisfied when student satisfies Mid Career Writing Assessment, Major units, Major GPA, Major Upper Division units, and Major Residency requirement.

Mid Career Writing Assessment

Not Satisfied: Complete 2nd semester English Composition with a B grade or higher. Students who do not earn a grade of B or higher in 2nd semester English Composition must also satisfy a college or department writing requirement. Consult your major advisor if you do not earn a grade of B or higher in 2nd semester English Composition.

· Courses: 1.00 required, 0.00 completed, 1.00 needed

Major Units

Not Satisfied: A minimum of 34 units must be completed in the major.

· Units: 34.00 required, 0.00 completed, 34.00 needed
Major GPA

**Satisfied:** A minimum 2.0 GPA is required in the major coursework.

- **Units:** 0.00 completed
- **GPA:** 2.000 required, 0.000 completed

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Major Upper Division

**Not Satisfied:** A minimum of 21 units of upper-division major coursework must be completed.

- **Units:** 21.00 required, 0.00 completed, 21.00 needed

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Major Residency

**Not Satisfied:** A minimum of 18 units in the pre-major, supporting coursework, professional core, and/or major must be taken at the University of Arizona.

- **Units:** 18.00 required, 0.00 completed, 18.00 needed

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Minor Required

**Not Satisfied:** A minor outside of the Mathematics Department is required for this major. Consult with your advisor to select a minor or discuss other options such as selecting a second major.