



Request for Substantial Changes to an Existing Program

Existing Program Information

- I. Name and Degree Type of Academic Program: Applied Humanities, Bachelor of Arts
 - a) Existing Emphases (if applicable): Business Administration; Consumer Market & Retail Studies; Engineering Approaches; Environmental Systems; Fashion Studies; Game Studies; Medicine; Plant Studies; Public Health; Rural Leadership and Renewal; Spatial Organization & Design Thinking
 - b) Academic Unit(s)/College(s): Department of Public and Applied Humanities/College of Humanities
 - c) Current CIP Code: 24.103 (Humanities/Humanistic Studies)
- II. Primary Contact and Email: Matthew Mars, Ph.D., Professor and Interim Head, Department of Public and Applied Humanities
- III. Planned start term for changes (fall only): Fall 2026

Program Changes

- IV. Describe the proposed changes to the program as well as the rationale for making the specific changes and include any relevant supporting data.

Astrobiology is the interdisciplinary scientific study of the origin, evolution, distribution, and future of life in the universe. It integrates biology, chemistry, planetary science, astronomy, geology, and physics to explore fundamental questions such as: How did life arise on Earth? Can life exist elsewhere in the cosmos? What are the environmental conditions that support life? And what is the future of life on Earth and beyond? Astrobiology also examines the ethical, philosophical, and cultural implications of discovering life beyond Earth, making it a field that bridges the natural sciences with the humanities and social sciences.

Astrobiology is often associated with space exploration, but its scope extends beyond the search for life on other planetary bodies. It includes the study of life's origins on Earth, the extreme environments where life persists, and the biochemical conditions that make life possible, whether on our planet or elsewhere. Astrobiology is an academic field and curricular domain well positioned to inform how we (humans) make sense of, come to value, and respond to space exploration and potential discoveries. Astrobiology thus raises profound ethical, philosophical, and cultural questions about what life is, how we recognize it, and how its discovery would reshape human understanding.

Indeed, astrobiology is at the forefront of the study of the vast implications of space discovery and innovation on the human condition. The proposed Astrobiology Emphasis as an option in the BA in Applied Humanities degree presents a unique opportunity to prepare students who are interested in the human factors and implications of space exploration and life in the cosmos. The Emphasis will be a one-of-a-kind option for students who are seeking an interdisciplinary program that integrates fundamental knowledge of astrobiology and closely associated life and physical sciences with a robust set of foundational courses in the applied humanities.

The prospective rigor and credibility of the Emphasis is bolstered by the University of Arizona being a global leader in space-related disciplines. We are ranked No. 2 in the world for Astrobiology behind only Caltech and ahead of UC Berkeley and other prestigious public universities. Concurrently, the University has one of the most vibrant College of Humanities (COH) in the country as recently illustrated through national stories on the innovative approaches to transdisciplinary curricula and pedagogy that have driven enrollment increases and disrupted conventional approaches to humanities

learning.¹ The BA in Applied Humanities is the fastest-growing undergraduate program in the UA College of Humanities with 388 students pursuing the degree in AY 2024-25. The promise of the Astrobiology-Applied Humanities collaboration through the proposed Emphasis is nicely encapsulated by Dr. Dante Lauretta, Arizona Astrobiology Center Founding Director, who says,

One of the things that makes our astrobiology community so strong is just how broad and interdisciplinary it is. We've got experts working on everything from exoplanets and biosignatures to the origins of life, consciousness, and even the intersections of astrobiology with the humanities and arts. It's this kind of cross-field collaboration that really sets us apart, and beyond the research itself, we're bringing in top students and scientists who are pushing the field forward in exciting ways.

The Applied Humanities foundation and core requirements will equip students with a strong understanding of how the applied humanities serve as a vehicle for advancing innovations and spurring organizational change, community development, and societal progress. The Astrobiology coursework included in the Emphasis will prepare students with a strong knowledge base and skills that span the fundamentals of astrobiology and related hard and life sciences (e.g., geosciences, molecular and cellular biology). By intersecting said fundamentals with the applied humanities, students will develop a distinct human-centered perspective and working knowledge of scientific inquiry, space exploration, and the impact of astrobiological questions. Students will be equipped to objectively critique how scientific discoveries about life in the universe impact our understanding of humanity, responsibility, and progress — qualifying them to lead in fields that connect scientific inquiry with societal advancement. Examples of the types of humanities-based issues that Emphasis students will be especially immersed in include:

- Philosophical and ethical issues related to dualism vs. materialism, humanism, climate change, and the potential discovery life on other planets;
- How cultural values shape interpretations of life beyond Earth and generate diverse perspectives on topics like planetary stewardship, contact scenarios, and space colonization.
- How different societies frame astrobiological discovery, and how such frameworks influence global responses to potential findings.

Equally important, the Applied Humanities – Astrobiology Emphasis will enhance student understanding of the economic and human relations side of the high-growth space industry and adjacent fields and sectors (e.g., aerospace, data science/AI, biotechnology).

Graduates of the Applied Humanities – Astrobiology Emphasis will be well-prepared to pursue a wide range of career paths. Examples include those in science communication, environmental and space policy, public outreach, museum and planetarium education, interdisciplinary research administration, journalism, art, and creative writing. Likewise, Emphasis students will be uniquely prepared for graduate programs that align with such burgeoning career paths as planetary policy and space law, citizen centered science design, and astroethics.

Lastly, data collected from students enrolled in the general education course PTYS 214: Astrobiology during the Fall 2022 and Fall 2023 semesters reflected a strong belief in the relevance and overlap of the humanities and cultural studies with the physical and natural sciences in astrobiology. The following results suggest strong prospective interest and demand for the proposed Applied Humanities – Astrobiology Emphasis. The mean response of Humanities, Social Science, and Business students from these courses (N=52) was 3.25 (1 = none, 5 = great deal) to the following prompt: “In your opinion, how much overlap is there between Science and Art/Humanities.” This response average increased from a pre-course mean of 3.12, indicating courses in or that are related to astrobiology positively influences student interest in the intersection between space and the human condition. The following post-course prompts and response rates (% of

¹ <https://hechingerreport.org/saving-the-field-and-the-world-how-humanities-programs-are-trying-to-rebound/>

students who agree or strongly agree) provide equally compelling evidence that there will be student interest in and demand for the proposed Applied Humanities – Astrobiology Emphasis:

Post Course Survey	N Responses	% Agree or Strongly Agree
People, culture, and societal beliefs impact how we study and think about the origins of life and life in the universe.	56	83.9
There are things to be learned on Earth that can help us tackle questions about life across the universe.	55	94.5
My own interests, beliefs, and experiences were relevant and contributed to my engagement with the topic of astrobiology.	54	85.2
During this course, I gained a better understanding of how astrobiologists, planetary scientists, and others conduct research and come to conclusions.	55	94.5
The career paths, methods, and topics in this course (the field of astrobiology) have relevance to my future career/academic aspirations.	55	69.1

* The number of responses (N) vary slightly due to item non-responses by some student respondents.

The high “agree” and “strongly agree” responses indicate astrobiology coursework is both interesting and accessible to students who are not pursuing a traditional STEM degree. We also note that the UA undergraduate Astrobiology minor currently enrolls ~60 students, all of whom are pursuing degrees in a STEM discipline. This indicates there is no current academic path into the human and cultural dimensions of astrobiology for non-STEM majors. The currently proposed Astrobiology emphasis in the BA in Applied Humanities degree program will fill this gap.

V. Comparison Chart –

UNDERGRADUATE <i>Only list modifications to requirements, if there is no change, leave blank.</i>	Existing Major Requirements	Requirements For Modified Major
Minimum # of units required in the major (units counting towards major units and major GPA)	42	
Minimum # of upper-division units required in the major (upper division units counting towards major GPA)	24	
<u>Minimum # of residency units to be completed in the major</u>	18	
Required supporting coursework (courses that do not count towards major units and major GPA but are required for the major). Courses listed must include prefix, number, units, and title. Include any limits/restrictions in place/needed (house number limit, etc.). Provide <u>course use form</u> if adding courses not owned by your department.		

Major requirements. List all major requirements including core and electives. Courses listed count towards major units and major GPA. Courses listed must include prefix, number, units, and title. Mark new coursework (New). Include any limits/restrictions (house number limit, etc.). Provide <u>course use form</u> if adding courses not owned by your department. Recommend ordering requirements in the same order as your advisement report.		
Emphases. If making changes to emphases, or adding emphases for the first time, list those changes or new requirements here.	For existing emphases list common core: <u>Common Core (24 units):</u> PAH 200: Introduction to Applied Humanities (3) PAH 201: Applied Humanities Practice: Techniques and Technologies for Public Enrichment (3) PAH 372: Intercultural Competence: Culture, Identity, Adaptation, and Intercultural Relations (3) PAH 420: Innovation and the Human Condition: Learning How to Improve Life in the Community and Beyond (3) Applied Humanities Elective (3) <i>Complete 1 course. Students should work with faculty and advisors to select a class that complements their professional core and/or foreign language studied.</i> PAH 383: Pre-Internship: Building Career Readiness (3) Applied Humanities Internship: Complete 3 units. PAH 493: Internship (1 – 6) or PAH 493H Honors Internship (1 – 3) PAH 498: Senior Capstone (3)	If adding additional emphases, add your proposed emphases requirements here: <u>Emphasis Requirements:</u> Students will complete all four of the following courses (12 units): ASTR/PTYS 170A1: Alien Earths (3) PTYS 170B2: Universe and Humanity: Exploring Our Place in Space (3) PTYS 214: Life in the Cosmos (3) ASTR 320: Philosophy and History of Astronomical Thought (3) Students will complete one of the following four biology courses (3 units): BE 170A2: Formation of a Planetary Biosystem (3) OR ECOL 170C2: The Diversity of Life (3) OR MCB 170C1: Evolution of Modern Biology (3) OR MCB 437: Life in Extreme Environments (3) Students will complete one of the following elective course options (3 units): ALC 422: Communicating Knowledge in Agriculture and the Life Sciences (3)

		OR ASTR 325: Science and Science Fiction (3) OR ASTR 333: Astronomy and the Arts (3) OR GEOS 170C1: Life on Earth (3) OR GEOS 478: Global Change (3) OR GEOS 497J: Dendroarcheology (3) OR PTYS 416: Asteroids, Comets and KBOs (3) OR SBS 310: Science of Consciousness (3) OR SCI 301: Introduction of Orbital Perspective (3) OR SCI 401: Science Communication (3)
Internship, practicum, applied course requirements. (Yes/No). If yes, provide description.	Yes, all students in the Applied Humanities major offered by the Department of Public & Applied Humanities (PAH), are required to complete a credit-bearing internship, regardless of their Emphasis area. The internship is an integral part of a tightly integrated three-course career readiness curriculum. This course sequence includes PAH 383 (Pre-Internship: Building Career Readiness, 3 units), PAH 493 (Internship, 3 units), and PAH 498 (Senior Capstone, 3 units).	
Senior thesis or senior project required (Yes/No). If yes, provide description.	NO	
Additional requirements (provide description)	No additional requirements	
Minor (optional or required)	Not required	

VI. Emphases – if adding emphases for the first time, please complete the following.

- Total number of students that have completed the major in the past 3 years (include double majors and dual degree majors): 161 BA in Applied Humanities graduates – AY 2022-23: 53; AY 2023-24: 62; AY 2024-25: 46
- Total number of students currently enrolled in the program: 388 (April 25, 2025)
- Special Conditions for Admission/Declaration –
There are no special conditions for admission to/declaration of this emphasis.
- Transcript – Should the emphasis name appear on the transcript? Yes.
- Diploma – Should the emphasis name appear on the diploma? Yes.

Description and Learning Outcome(s) – at least one new learning outcome is required per emphasis requested. Add rows and tables as needed. Visit the [University Center for Assessment, Teaching and Technology \(UCATT\)](#) for resources and consultation. UCATT review and approval is required.

Emphasis: Astrobiology

(Learning outcomes and curriculum map reviewed and approved by UCATT on August 5, 2025)

Learning Outcome #1: Critically examine space exploration and advancements in relation to the economic, environmental, sociocultural, and political dimensions of the human experience.
Concepts: Frameworks for interpreting and contextualizing the economic, environmental, and socio-cultural – and -political implications of space discoveries and advancements.
Competencies: Critical thinking, Data-informed decision making, Applied research

Learning Outcome #2: Construct strategic narratives that educate the public on the many effects and implications of space exploration and science on the economic, environmental, and socio-cultural and – political elements of the human condition.
Concepts: Frameworks, principles, and strategies for framing complex scientific ideas, theories, and innovation in highly accessible and adaptable ways.
Competencies: Science communication, Critical thinking

Learning Outcome #3: Develop and implement strategies for advancing space innovations in human-centered ways.
Concepts: Innovation diffusion models, strategic communication and storytelling approaches and frameworks.
Competencies: Critical thinking, Strategic communication, Innovation

- f) Curriculum Map: Which courses in the emphasis connect to these learning outcomes? Use the table below to provide the information, Key: “I” = Introduced; “R”= reinforced and opportunity to practice; “M”= mastery at the senior or exit level; “A”= assessment evidence collected for program-level decision making

Courses	Emphasis 1 Student Learning Outcomes
ASTR/PTYS 170A1: Alein Earths	LO1: I, LO2: I, LO3: I
PTYS 170B2: University and Humanity: Exploring Our Place in Space	LO1: I, LO3: I, R
PTYS 214: Life in the Cosmos	LO1: R, LO2: R
ASTR 320: Philosophy and History of Astronomical Thought	LO1: M, A, LO2: M, A, LO3: M, A
BE 170A2: Formation of a Planetary Biosystem	LO1: R, LO2: R
ECOL 170C2: The Diversity of Life	LO1: R, LO3: R

MCB 170C1: Evolution of Modern Biology	LO1: R, LO2: R
MCB 437: Life in Extreme Environments	LO1: R, LO2: R, LO3: R
ALC 422: Communicating Knowledge in Agriculture and the Life Sciences	LO3: R, M
ASTR 325: Science and Science Fiction	LO2: R, M
ASTR 333: Astronomy and the Arts	LO2: R, M
GEOS 170C1: Life on Earth	LO1: R
GEOS 478: Global Change	LO3: R
GEOS 497J: Dendroarchaeology	LO1: R
PTYS 416: Asteroids, Comets and KBOs	LO1: R, LO2: R
SBS 310: Science of Consciousness	LO2: R
SCI 301: Introduction of Orbital Perspective	LO3: R
SCI 401: Science Communication	LO3: R, M

Sample major maps

Year	Fall	Spring
1		PAH 200 ASTR/PTYS 170A1
2	PAH 201 ASTR/PTYS 170B2	PAH 372 PTYS 214
3	PAH 383 Emphasis biology course	PAH 493 ASTR 320
4	PAH 420 Emphasis elective	PAH 498

Year	Fall	Spring
1	PAH 200 PAH 372 ASTR/PTYS 170A1	PAH 201 ASTR/PTYS 170B2
2	PAH 383 PTYS 214	PAH 493 Emphasis biology course
3	PAH 420 ASTR 320	PAH 498 Emphasis elective

Year	Fall	Spring
1	PAH 200 PAH 372 PAH 383 ASTR/PTYS 170A1	PAH 201 PAH 493 ASTR/PTYS 170B2 PTYS 214
2	PAH 420 Emphasis biology course ASTR 320	PAH 498 Emphasis elective

Budgetary Considerations

- VII. Faculty impact – will new faculty hires be required to deliver the new, proposed curriculum? Note: New hires will require funding directly from the college and/or department. Proposal approval does not denote approval for institutional funding.

The proposal BA in Applied Humanities with an Human-Animal Interaction emphasis packages existing, routinely offered courses. Thus, no new faculty hires will be required to deliver the proposed emphasis.

- VIII. Budgetary impact – indicate new resources needed at the department/college and institutional level to implement proposed changes. If reallocating resources, indicate where resources will be taken from and the impact this will have on students/faculty/program/unit.

Given the proposed Human-Animal Interaction emphasis in the BA in Applied Humanities consists of existing, routinely offered courses that are already part of faculty members' regular instruction rotation, no new resources will be required for implementation.

Additional Details

- IX. Accreditation/Board Approval - n/a

- X. Transfer Student Consideration (undergrad only) – Please explain how you have planned and evaluated the changes you requested in the context of:

- Mitigating the complexity of the transfer pathway/curriculum
- Supporting transfer student success

- Ensuring transferability of course work from Arizona community colleges

All the PAH core courses are offered each semester on Main campus and all ACBS courses are routinely offered in the academic year, whether in the fall or spring semesters – thus transfer students will have relatively consistent access to the core and emphasis courses. There are no prerequisites for any of the core courses save PAH 498: Senior Capstone, which requires senior status. The otherwise all the core and emphasis courses may thus be taken in any sequence as needed. The major may be completed in as few as 4 semesters (see the sample major map above), providing a reasonable time-to-degree for transfer students. Lastly, there is excellent communication and collaboration between the PAH academic advisor and her counterpart in the partner college, meaning course substitutions and the like will be easily handled. The same is true for course scheduling, transferability, and student success, mitigating a great deal of the complexity often associated with transfer students.

XI. Required signatures

Program Director/Main Proposer (print name and title): Matt Mars, Professor and PAH Dept. Head

Program Director/Main Proposer signature: 

Date: Oct 27, 2025

Department Head (print name and title): Matt Mars, Professor and PAH Dept. Head

Department Head's signature: 

Date: Oct 27, 2025

Associate/Assistant Dean (print name): Chantelle Warner, Associate Dean, Academic and Faculty Affairs

Associate/Assistant Dean's signature: 

Date: Oct 28, 2025

Dean (print name):

Dean's signature:

Date:

PAH UG Astrobiology emphasis proposal-FINAL

Final Audit Report

2025-10-28

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