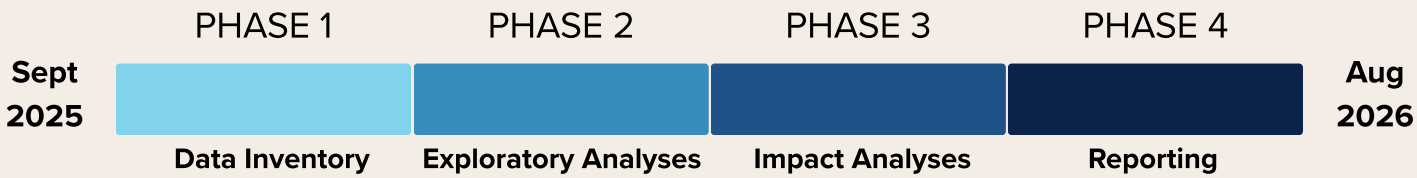
C-STAR: Project Overview

Completion Strategies Tested for Acceleration & Refinement (C-STAR) launched in 2025 as a collaboration between Hispanic Serving Institution Initiatives, Assessment & Research (A&R), and Societal Impacts. The C-STAR cohort (Sept '25-Aug '26) features four University of Arizona programs, with A&R's team providing data analysis. The goal of this assessment initiative is to identify strategies, programs, and practices that positively contribute to degree completion at the University of Arizona.



C-STAR ANALYTICAL FOCUS

C-STAR centered three questions:

WHAT: To *what extent* does this strategy, program or practice contribute to degree completion?

WHO: For *whom* does this strategy work? Is this program especially impactful for particular groups of students?

HOW: Under *what circumstances* is this strategy impactful? What strategies are used and for what reasons?

C-STAR analyses focused on tracking 4- and 6-year degree completion among the undergraduate degree-seeking population of each participating program.

To investigate the effect of program participation on degree completion, the **A&R team employed a standardized Propensity Score Matching methodology,** adapted to each project. The A&R team also conducted a series of supplemental analyses of institutional datasets to explore other facets of student experience within the four programs. These included descriptive summaries of participant demographics, analysis of internal surveys, and analysis of existing datasets, like the U of A responses to the National Survey of Student Engagement.

PROPENSITY SCORE MATCHING APPROACH

Propensity score matching (PSM) is a quasi-experimental statistical technique intended to simulate a randomized control experiment in settings where randomized control experiments are impractical or impossible. This methodology **matches a treated population** (e.g. VIP students, AIR interns...) **to peers who did not partake in the treatment, but are statistically similar** to the treated population across key variables. To carry out C-STAR PSM analyses, the A&R team developed a matching pool datafile, of all undergraduates enrolled at Fall and Spring Census from Fall 2018 to Spring 2025 (excluding readmits and non-degree seeking students), from which matches were derived.

C-STAR SUMMARY: AIR INTERNSHIPS (AY 2021-22 to 24-25)

The Arizona Institute for Resilience (AIR) offers paid internships through the RISE and Earth Grant programs. These internships are designed to give students real-world work experience, grow their professional network, and help them develop core skills in communication and problem-solving. RISE grant offers placement in local, regional, and international internships with flexible start/end time. Earth Grant is a year-long, cohort-based program which includes weekly leadership development workshops.

437 Students (F21-S25)

362 Undergrads

75 Grad/Prof

PROPENSITY SCORE MATCHING ANALYSIS - RESULTS AT GLANCE

Undergraduate AIR participants who were a part of the First-Time entry cohort (n=100) had **a 4-year graduation rate of 68% compared to a matched peer set rate of 64%, indicating a modest, positive association**. While these results are encouraging in terms of a potential effect, cautious interpretation is recommended due to the small overall number in the analytical sample. At the 6-year rate, both AIR participant and matched-peer rates exceeded 95% with the control group slightly outpacing participants, and both performing well-above the University of Arizona general 6-year graduation rate.

SELECTED FINDINGS

- Between Fall 2021 and Spring 2025, **AIR partnered with 81 organizations to deliver a total of 488 paid internship experiences**, with some participants engaging in more than one. Partner organizations included U of A labs and facilities, such as Biosphere 2, as well as local and national employers and organizations working internationally, such as the Global Health Institute in South Africa.

- **AIR interns** who graduated and took the Graduating Senior Survey planned to attend graduate school at rates higher than the U of A respondents overall (41% compared to 27%).

- Students who took the post-program survey consistently reported **increased confidence in their collaboration, communication and critical thinking skills after participating in RISE**. All 105 students who answered the related survey question said they would recommend the program to another student. Exposure to the field, technical skill development, problem solving, and career clarification were the most commonly cited themes in an open-ended question on “How did your participation in a RISE Internship impact you?” Financial support, though not directly prompted, was noted by 8% of the respondents as a positive aspect.

C-STAR SUMMARY: CIELO (AY 2020-21 to 2024-25)

CIELO at the University of Arizona provides Global Education programs that integrate travel, service learning, cultural exchange, and community-engaged leadership across local, national, and international settings, each lasting 1-2 weeks. CIELO also offers Community Connections one-day programs local to Tucson. CIELO's Global Education programs, the focus of these analyses, aim to provide an opportunity to participate in educational travel to a population that may have never had the chance to do so before, and who may be underserved by more traditional Study Abroad programs.

CIELO GLOBAL EDUCATION

207 Students (F20-S25)

155 Undergrads

52 Grad/Prof

PROPENSITY SCORE MATCHING ANALYSIS - RESULTS AT GLANCE

Undergraduate CIELO participants (n=34) **complete their degree within four years (79%) at a much higher rate than matched peers (53%).** CIELO and peers graduate in six years at the same rate (97%, n=32). While these results are encouraging in terms of a potential effect, due to the small overall population size, cautious interpretation is recommended .

SELECTED FINDINGS

- **CIELO serves a highly unique population,** especially within the context of Global Education programming, with the proportion of both CIELO undergraduate participants and applicants that are First-Generation, Pell, Black, Latino/a, and Native roughly double those of the U of A undergraduate population as of Fall Census 2025.

- Propensity-score matching results suggest a **positive impact of CIELO participation on timely degree completion**. We theorize that CIELO may positively impact degree completion by building community among participants and facilitators, building a sense of belonging towards the institution, as well as providing students with an educational experience that may help access other educational opportunities (such as scholarships or graduate programs).

- Overall, **CIELO's practices** and potential positive impact on degree completion **align with the U of A's Academic Success Goal of Success for Every Student**. This goal focuses on the task of strengthening the student experience and building community, as well improving completion, retention, and career readiness. CIELO is working towards this goal by providing global experiences to students who may otherwise be able to access them, building community and belonging, and (as these analyses suggest) potentially supporting timely degree completion.

C-STAR SUMMARY: EEB (AY 2018-19 to 2020-21)

In response to a decline in math readiness, the Department of Ecology and Evolutionary Biology (EEB) has introduced curricular changes aimed at streamlining math pathways, while maintaining rigor. EEB is one of only two UA departments with a "pre-med" curriculum that allows students who place into the lowest math level (Math 100) to begin major core coursework.

Students have two Calculus I options:
OPTION 1: Includes **Math 119A Biocalculus** (4-units), which requires one semester of calculus coursework;

OPTION 2: Includes **Math 120R Pre-calculus** (4-units), Math 122A (1-unit), and Math 122B First-semester Calculus (4-units), translating to up to three terms of coursework.

STUDENTS IN FIRST-TIME COHORT, COLLEGE OF SCIENCE

492	1,061
119A Students	120R Students

ALL COHORTS, ALL COLLEGES

860	2,593
119A Students	120R Students

	Pre-Algebra	College Algebra	Calculus I		
OPTION 1	MATH 100 (3)	MATH 112 (3)	MATH 119A (4) [10% DEW Rate]		
OPTION 2	MATH 100 (3)	MATH 112 (3)	MATH 120R (4) [44% DEW Rate]	MATH 122A (1) [20% DEW Rate]	MATH 122B (4) [39% DEW Rate]

PROPENSITY SCORE MATCHING ANALYSIS - RESULTS AT GLANCE

College of Science **students taking 119A to satisfy their calculus requirement complete their degree in four years at a higher rate than 120R peers** (59% to 47%, a difference of 8 students, or 11% due to rounding). They also complete in six years at a higher rate (+8% difference, 8 students).

SELECTED FINDINGS

- 119A students earn overall higher grades than their peers in 120R, with 119A students earning more As and Bs than 120R peers. Analyses of degree completion and grades in a later 300 level class show that 119A students outperform peers in both areas, which suggest that 119A students are indeed showing stronger academic achievement.
- These results suggest that the implementation of foundational science and math requirements that are better aligned to a student's major curriculum can help support academic success and timely graduation.

C-STAR SUMMARY: VIP (AY 2020-21 to 2024-25)

Vertically Integrated Projects (VIP) are experiential learning opportunities that engage undergraduate, graduate, and professional students in research, creative inquiry, and team collaboration.

Through VIP, students contribute to faculty-directed, long-term, large-scale, and multidisciplinary endeavors. U of A VIP teams represent a wide range of colleges, disciplines, and project types. VIP launched in 2020, and students can currently participate for credit, pay, or on a volunteer basis.

936 Students (F20-S25)

740 Undergrads

206 Grad/Prof

PROPENSITY SCORE MATCHING ANALYSIS - RESULTS AT GLANCE

Undergraduate VIP students who were a part of the First-Time entry cohort (n=163) **complete their degree within four years at a rate 5 percentage points higher than matched peers (74% to 69%).** This difference amounts to 9 additional students completing their degree. VIP FT students also saw slightly higher 6-year graduation rates than matched peers (+2%). Mild positive effects remained consistent among VIP Transfer students (n=69), with a positive difference of +3% on the matched group.

SELECTED FINDINGS

- The VIP program **engages a wide range of campus units**, as well as a number of external partners. Between Fall 2020 and Spring 2025, VIP students (n=936) represented 20 University of Arizona colleges and departments, with the College of Science (35%) and the College of Agriculture, Life and Environmental Sciences (16%) as the most frequent affiliations. As of Spring 2025, 115 team leaders contributed to the VIP program. Team leaders are faculty or research professionals working across 12 colleges, 5 administrative units, and 4 external partners.

- Propensity score matching results suggest that **VIP participation has a mild positive effect on timely degree completion** for both First-Time and Transfer students. VIP's core mission is to cultivate professional skills including mentorship, cross-functional collaboration, and applied technical expertise. C-STAR findings position VIP as a high impact practice that meaningfully supports degree completion, along with academic preparedness.

- Supplemental analyses of VIP participant responses (n=46) to the 2024 National Survey of Student Engagement (NSSE) showed that **VIP students outperformed peers on each of the NSSE's ten engagement indicators**, though differences were not statistically significant and sample size constraints did not allow for disaggregation by first-year/senior status.