School of Human Evolution and Social Change

Arizona State University

SEVEN YEAR PROGRAM REVIEW, 2011-2018

SELF-STUDY REPORT

Academic Year:	**2018-2019**
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Section I

OVERVIEW

1. Overview and Executive Summary

The School of Human Evolution and Social Change (SHESC) was formed in 2005 as Arizona State University began replacing traditional disciplinary departments with transdisciplinary schools that pursued research and teaching aimed at addressing major challenges of the 21st Century. Our School was one of the first units to spearhead this university-wide re-organization. Building from existing strengths in holistic, four-field anthropology, the new School brought together faculty trained in major areas of anthropological inquiry (archaeology, bioarchaeology, physical anthropology, cultural anthropology, linguistics, and museum anthropology) with university transfers and new hires in areas of global health, environmental social science, applied mathematics, computer science, political science, epidemiology, economics, and sociology. Organized by pressing challenges rather than traditional disciplinary silos, SHESC's diverse faculty continue to work together on an intersecting set of questions about how humans evolved, how they adapt and thrive in past and present environments, and how they can build resilient futures for humankind.

In the era spanning SHESC's launch (2005) and the last self-study (2010-2011), our new unit experienced massive change and growth. This expansion included new faculty hires, new degree programs, new centers and institutes, and a major increase in external funding and in student enrollments. Since 2010-2011, the School has sustained, and in some cases accelerated, the pace of growth in these areas. To support the increasing scale and complexity of its activities, the School has built new governance structures, fostered innovations in teaching and mentoring, and forged new hubs of intellectual activity and community engagement. These efforts have propelled SHESC to national and international prominence, including top rankings among anthropology programs in research expenditures (#1 NSF HERD Rankings 2017) and research output (#1 nationally and #4 internationally; 2017 Center for World University Rankings).

Today, our school's activities are propelled by a thriving and collegial group of faculty (53.6 FTE), staff (31.9 FTE), postdoctoral fellows (15 FTE), and graduate assistants (31.7 FTE) working together to generate > 20,000 student credit hours and $6.4 million in research expenditures annually. The School administers four undergraduate degrees with 839 majors and six graduate degrees serving 133 graduate students (Table 1). These programs are built from core strengths in anthropology, global health, environmental social science, museum studies, and applied math in the life and social sciences. Since the last self-study, our programs have granted 1332 bachelor degrees and 268 graduate degrees—an increase of 150% in bachelor's degrees and 90% in PhDs.

Total annual research expenditures have increased by 54% ($4.1 to $6.4 million) since the previous self-study in 2011. Much of this funding supports large, team-based projects that span diverse disciplines within and beyond SHESC. These research projects also support graduate and undergraduate training, with 31% of graduate support from funded projects, and more than 140 undergraduates annually gaining valuable research experience working with faculty in the School's undergraduate research apprenticeship program.

By nearly all measures, our school has accomplished the ambitious goals set for itself in 2005 (Appendix A). At the core of the School's increasing productivity is its people and the collaborative connections which help them collectively pursue pressing questions and problems with innovative approaches. The School's governance and operations are designed to foster such collaborations and to sustain intellectual diversity and innovation in teaching and research. Schoolwide management coupled with distributed governance structures—approaches, degree programs, and research enterprises—manages specific components of the School's activities.

This report describes SHESC's achievements and challenges at one period in time. However, the School is defined as much by its capacity to adapt and grow as it is by its specific achievements and challenges at any one slice in time. For this reason, we also outline in the report examples of how the School has adapted to challenges while proactively building new infrastructure that promotes innovative research and teaching.

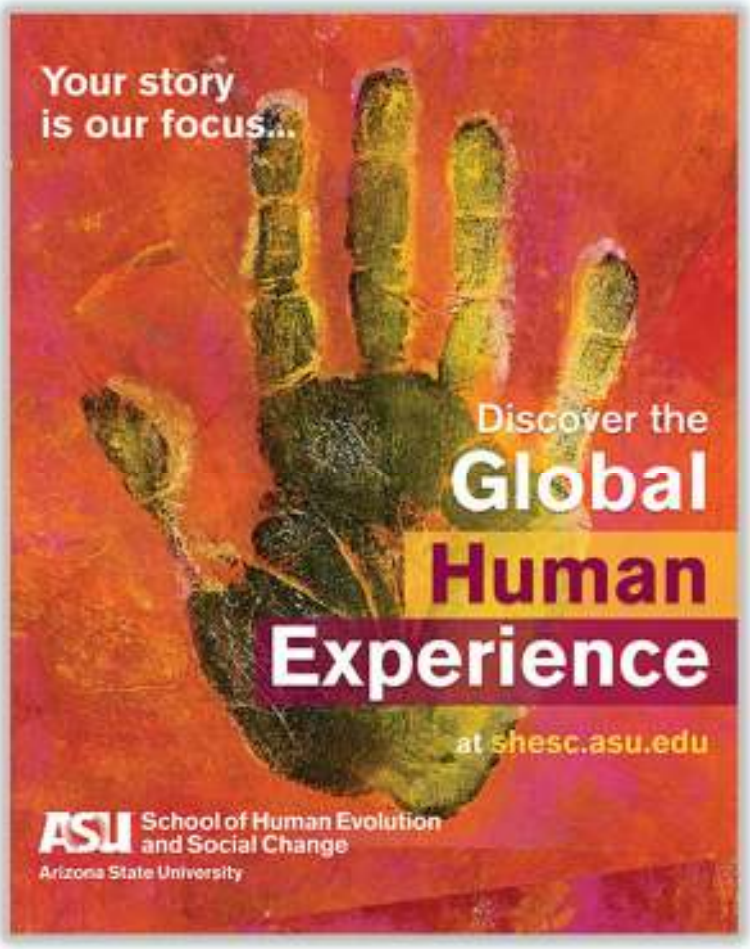
The School has achieved a great deal since its inception, but this success also highlights a number of major challenges that lie ahead. These include building institutions that foster a more inclusive faculty and student body, sustaining our substantial increases in research activity, finding new solutions to attract and support graduate students, and crafting graduate curricula that prepare our students to tackle the major intellectual and societal challenges of the 21st Century.

Table 1: Overview Data Summary of the Unit

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Headcounts							
Degree-Seeking UG (Fall)	690	709	644	641	678	827	839
All Undergraduates	862	886	838	830	878	1035	1099
Master's (Fall)	6	17	21	13	21	15	5
Doctoral (Fall)	172	160	163	158	149	129	128
# Degrees awarded							
Undergraduate	157	182	189	191	194	204	215
Master's	16	16	23	21	27	19	11
Doctoral	14	18	22	18	23	23	17
Tenured/Tenure Track (T/TT) faculty Headcount	43	42	44	48	48	49	48
Total degrees awarded per T/TT Faculty Headcount	4.3	5.1	5.3	4.8	5.1	5.0	5.1
Total Student FTE	1065	1154	1108	1170	1234	1383	1616

A Note on Historical Scope. This self-study charts the school's trajectory over the past seven years. However, it is often difficult to interpret the school's short-term changes outside of its broader historical context. Thus, we regularly present additional historical data to place the school's achievements and challenges in the context of longer-term trends and events.

A Note on Data. This self-study draws from a number of data streams—Academic program profiles from ASU's Office of Institutional Analysis, alumni and exit interviews and course evaluations from ASU's Office of Educational Effectiveness (UOEE), sponsored award information from the Office of Knowledge Enterprise Development (OKED), publication data from Elsevier's Scival system, undergraduate and graduate student progress and placement from SHESC records, and data from faculty curriculum vitae.



Section II

MISSION and STRATEGIC DIRECTIONS

2. Mission and Strategic Directions

Our School's activities are geared toward accomplishing our mission and implementing our strategic vision while fulfilling ASU's eight design aspirations (Table 2).

Table 2. New American University Design Aspirations	
Conduct use-inspired research	Leverage the settings in the places we work
Enable the success of each unique student	Create knowledge by transcending academic disciplines
Sustain socially embedded partnerships	Use this knowledge and encouraging innovation
Engage globally	Transform society to meet social needs

2.1. Mission Statement

In SHESC, we investigate what makes us human and use new knowledge to foster a healthier, sustainable world. Using tools from anthropology, global health, environmental science, and applied mathematics, our work integrates the natural and social sciences to answer questions about the human story and inspire our students to become informed, socially responsible members of their communities.

2.2. Strategic Vision

Our school aims to be a leader in innovative research and teaching that impacts our generation and beyond. Our faculty and student interactions from learning and research will be measured not just in labs, classrooms and field sites, but in hospital rooms and living rooms, in rural villages and bustling cities, as students become citizens who are equipped with the knowledge and means to change the world.

Faculty and students share five common principles:

- In learning about others, we learn about ourselves.
- In learning about our past and present, we find ways to shape our future.
- By thinking beyond individual academic disciplines, we make innovation the expectation.
- If the world is our lab, then we must give back to it with science that is ethical, tangible, accessible and beneficial for humankind.
- Through teaching and mentorship, we empower new knowledge seekers to build a better world.

2.3. Strategic Design of SHESC

The School is designed to promote unified governance and decision-making while encouraging intellectual diversity and innovation. This includes a system for schoolwide management as well as substructures—approaches, degree programs, and research enterprises—that manage specific components of the School's activities. SHESC faculty also maintain active affiliations and leadership roles in a number of cross-cutting ASU enterprises.

2.3.1. Schoolwide Governance. In such a large unit, a major challenge is sustaining nimble decision-making that responds sensitively to the full range of faculty, staff, and student voices. To address this issue, SHESC undertook a complete redesign of unit governance in 2016 to institutionalize faculty input and feedback into the School's decision-making. Administratively, the School is managed by a directorate team consisting of the School's Director (Reed), and three Associate Directors (graduate programs, Michelaki; undergraduate programs, Stojanowski; at-large, Hruschka) and an Assistant Director of Operations (Phillips).

A faculty-elected Executive Committee (5 members serving overlapping 3-year terms) is charged with soliciting faculty feedback and developing and seeking comment on proposals for improving governance, teaching, and other pressing School matters. A parallel committee of peer-elected graduate student representatives from each of the graduate degrees provides a voice for graduate concerns, and a staff leadership council comprised of all administrative section leaders in the unit performs a similar function for staff. Other schoolwide committees are charged with decision-making about curricular matters, research advancement, and faculty evaluation.

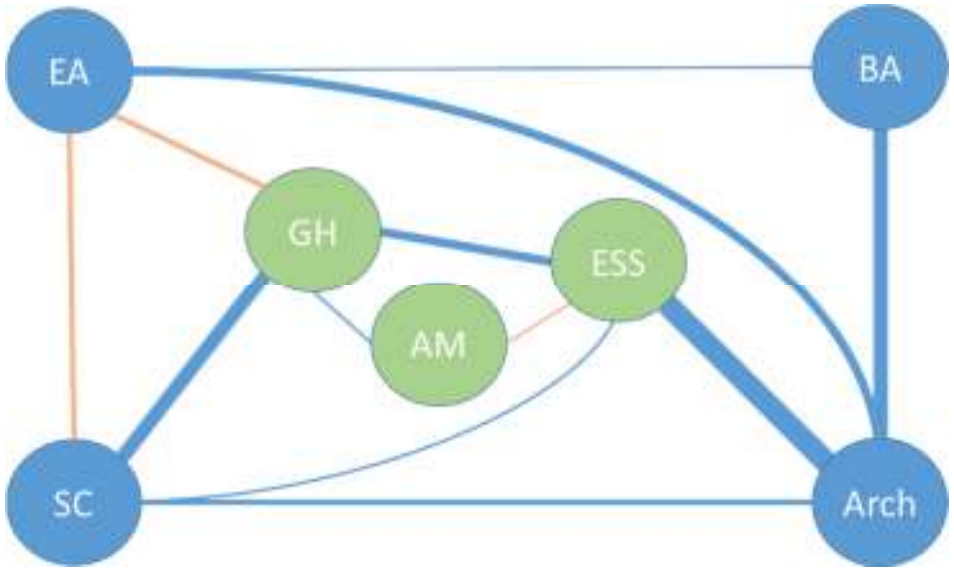
2.3.2. Schoolwide Operations. The School's staff (16.9 FTE state-funded + 15 FTE locally funded) support a number of schoolwide activities, including academic support and undergraduate and graduate advising (5 FTE), business and grants (3 FTE), human resources (1 FTE), marketing and communications (3 FTE), directorate assistance (1 FTE), staff management (1 FTE), and front office (2 FTE). A number of staff also support specific program activities, including Deer Valley Rock Art Center (2.5 FTE), Innovation Gallery (1 FTE), the Center for Global Health (1 FTE), and staff and postdocs for research initiatives (7 FTE postdocs, 4.4 FTE other).

2.3.3. Faculty. At the end of the 2017-2018 academic year, SHESC's faculty consisted of 35 tenured (12 associate, 24 full), 12 tenure-track, and 10 non-tenure track faculty with at least 50% appointments in SHESC. Two of our tenure-track lines are split 50/50 with School of Sustainability, and another two are 50% at ASU. Since 2011, we also developed a plan for hiring and including instructors and lecturers in our faculty, with four currently part of the School's faculty. Five additional faculty have SHESC as their tenure-home, but have taken high-level leadership positions in other schools (0 FTE or 0.2 FTE at SHESC). In addition to expertise in traditional anthropological subfields, our faculty also bring world-class expertise in a range of disciplines, including epidemiology, sociology, political science, public policy, museum studies, mathematical modeling, economics, and human ecology (see Table 7.9 for Fall 2018 list).

2.3.4. Approaches. The School's faculty is internally organized into "approaches" that reflect both established disciplinary and emerging transdisciplinary strengths and map to some extent onto our graduate and undergraduate instructional efforts. Four of these approaches—Archaeology (Arch), Bioarchaeology (BA), Evolutionary Anthropology (EA), and Sociocultural (SC)—roughly approximate subfields within anthropology. Three approaches that cut across disciplines—Applied Math in the Life and Social Sciences (AMLSS), Environmental Social Science (ESS), Global Health (GH)—represent fields that are essential for addressing the questions and problems pursued by the School's faculty. Although all SHESC approaches are in some sense transdisciplinary, we refer to the latter three as "transdisciplinary" approaches.

Approaches are flexible arrangements with faculty members free to join any approach depending on how they wish to be represented in faculty governance and the students they are supervising. Approaches are headed by an approach head and meet independently on a regular basis to fulfill a number of unit functions: planning course offerings, selecting graduate admits, annually evaluating graduate students, proposing colloquium speakers, and sending representatives to service committees.

Figure 2.3.4. Faculty co-membership in SHESC approaches. Circles = approaches (EA = evolutionary Anthropology, BA = Bioarchaeology, SC = Sociocultural, Arch = Archaeology, GH = Global Health, ESS = Environmental Social Science, AM = Applied Mathematics in the Life and Social Sciences). Blue nodes = disciplinary approaches, green nodes = transdisciplinary approaches. Width of lines approaches indicate # of faculty with primary or secondary membership in both approaches (2017-2018). Orange lines have been forged through new hires since 2011.



Over half of our faculty members contribute to more than one approach and attend meetings and supervise graduate students in two or more of these approaches. Thus, there is a high degree of functional connectivity across these faculty and student groupings. Figure 2.3.4 maps the integration of the School's seven approaches based on faculty co-membership in 2017-2018. It also illustrates the role of transdisciplinary approaches—Global Health, Environmental Social Sciences, and AMLSS—in connecting the unit, and how recent hires

(represented by orange lines) have contributed to integrating the unit in novel ways. Importantly, this figure underestimates connectivity of faculty given that many also participate in the activities of more than two approaches.

2.3.5. Degrees. SHESC faculty and staff support four undergraduate, two masters, and four PhD degrees offered by our school (Table 2.3.5). Two of these degrees (Anthropology BA and Global Health BA) are offered in both in-person and online formats. Each approach is responsible for specific degree programs, with four approaches supporting the Anthropology degrees. SHESC also offers certificates in Social Science Research Methods (UG), Museum Studies (G), and Immigration Studies (G).

Table 2.3.5. **Degree programs and their support by approaches**

Degree Programs	Approaches	Undergraduate	Graduate
Anthropology	Arch, EA, BA, SC	BA, BS	PhD
Global Health	GH	BA	MA, PhD
Environmental Social Science	ESS		PhD
AMLSS	AMLSS	BS	PhD
Museum Studies*	SC		MA

EA = Evolutionary Anthropology, BA = Bioarchaeology, SC = Sociocultural, Arch = Archaeology, GH = Global Health, ESS = Environmental Social Science, AMLSS = Applied Mathematics in the Life and Social Sciences. * currently re-evaluating whether to continue offering.

2.3.6. Research Enterprises. SHESC supports and is affiliated with a number of centers, initiatives, and institutes aimed at fostering faculty collaborations on specific questions and problems. In many cases, these enterprises are supported by dedicated staff and independent funding. Table 2.3.6 lists enterprises that are administered directly by SHESC as well as those that have active faculty affiliations. More details about the missions and recent initiatives of these enterprises are available in the Appendix (Appendix B).

Table 2.3.6. Centers and Research Enterprises and their major support by approaches.

SHESC-administered	Approaches
Adaptation, Behavior, Culture, and Society	EA, SC, Arch
Alameda Repository	Arch
Center for Archaeology and Society	Arch
Center for Bioarchaeological Research	Bioarch
Center for Global Health	GH, SC, ESS
Center for Digital Antiquity	Arch
Global Impact Collaboratory	SC, GH
Institute of Human Origins*	EA, Arch
Teotihuacan Research Laboratory	Arch
Deer Valley Petroglyph Preserve	Arch, SC
Innovation Gallery	All approaches
Centers with SHESC affiliated faculty	
ASU-SFI Center for Biosocial Complex Systems	ESS, EA, Arch, GH, SC, AMLSS
Center for Behavior, Institutions, and Environment	ESS, SC, AMLSS
Center for Evolutionary Medicine	EA, GH
Center for Social Dynamics and Complexity	ESS, EA, Arch, GH, SC, AMLSS
Institute for Social Science Research	SC, GH
Simon A. Levin Mathematical, Computational and Modeling Sciences Center	AMLSS

*Administered through the office of the Dean of the College of Liberal Arts and Sciences.

SHESC Research Centers and Enterprises

Adaptation, Behavior, Culture and Society, started in 2014, brings together scholars from across the social sciences and biological sciences who share an interest in using evolutionary tools, theories and insights to better understand how and why people behave as we do.

Alameda Repository, started in 2014, provides leadership in publically-responsive curation of more than 70,000 specimens and millions of individual objects from throughout the US Southwest and beyond.

Center for Archaeology and Society (CAS), started in 2013, this center advances archaeological research responsive to broader concerns in the social sciences and the public with a focus on the US Southwest.

Center for Bioarchaeological Research (CBR), founded in 2005, communicates new knowledge about past peoples from skeletal and associated data.

Center for Global Health (CGH), founded in 2010, advances innovative approaches to understand and address health as a critical and complex part of the broader human condition, especially drawing on strength in the social sciences.

Center for Digital Antiquity, founded in 2010 in collaboration with ASU Libraries, is dedicated to the creation of the leading national/international repository for digital archaeological data and documents.

Global Impact Collaboratory, founded in 2017 brings together leading social scientists with highly experienced development practitioners to transform how we plan for and demonstrate the impacts of development programs on people and their communities.

Institute of Human Origins (IHO), moved to ASU and SHESC in 1997, and is an international leader in advancing scientific and public understanding of human evolution and its contemporary relevance.

Teotihuacan Research Laboratory, is an ASU-managed facility at Teotihuacan that provides facilities for teams of students and researchers to study one of the largest cities in the ancient world.

2.3.7. Leadership across ASU. SHESC resides within the Social Sciences division of the College of Liberal Arts and Sciences, but our school also has close ties to many other units on campus that share our interests in human origins, complex adaptive systems, human-environment interactions, institutions, health, migration, museum studies, and sustainability. In many of these units we provide important leadership, including two in dean-level appointments (Boone [School of Sustainability, Dean], and M. Nelson [Barrett, the Honors College, Vice Dean]), and 15 faculty and two staff leading research centers (Barton, Castillo-Chavez, Kintigh, Knudson, McManamon, Peeples, Stone, Wutich, York), institutes (Kimbel, Johanson, Marean, Bernard), and other enterprises (Toon, Innovation Gallery; Brewis, Schuster, Global Impact Collaboratory; Scott, Deer Valley). Five also direct university-wide transdisciplinary graduate degree programs and certificates (Tsuda, Toon, Barton, Boone, and Castillo-Chavez).

2.3.8. Intellectual Life. Given the faculty's diverse interests and the ramifying connections to other units, there are multiple opportunities to discuss current scholarship, present ongoing work, and engage in informal conversation that leads to collaboration. Multiple lecture series both within SHESC (regular colloquium) and with affiliated programs (e.g., Center for Evolutionary Medicine, Institute of Human Origins, Evolution of Social Complexity) provide opportunities for faculty, students, and staff to engage with leading researchers and cutting-edge scholarship. Regular "journal clubs" and "brown bag seminars", which are primarily led by graduate students and post-docs, provide opportunities to engage with current research and sometimes results in writing projects led by students or postdocs. Frequently these projects allow students from different lab groups and disciplines to collaborate. Some approaches also hold informal "pre-conference" meetings where students are encouraged to practice their conference presentations in front of their fellow graduate students and faculty. Other approaches hold mock job talks and interviews to assist graduate students and post-docs preparing for the job market. Museum openings at the School's Innovation Gallery also provide opportunities to discuss the exhibits as well as network and engage with faculty from across the School.

2.4 Key Intellectual Interests and Strengths.

Since its inception, SHESC has grown around a core set of intellectual interests. These build on our theoretical and methodological strengths, but also allow us to understand the past and present in order to address major challenges of the future. These interests include:

- Human Origins, Evolution and Diversity
- Societies and their Natural Environments
- Biocultural Dimensions of Global Health
- Culture, Heritage and Identity
- Global Dynamics and Regional Interactions
- Urban Societies

To pursue questions and problems in these areas, our faculty bring expertise from a diverse methodological toolkit, including genetics, isotope analysis, lithics, ceramics, zooarchaeology, archaeobotany, paleoanthropology, osteology, dental anthropology, immunological and endocrinological biomarkers, behavioral observation, behavioral experiments, interviews, surveys, social network analysis, institutional policy analysis, Bayesian statistics, computational modeling, geospatial analysis, participant observation, and qualitative data analysis. This toolkit is distributed across 27 labs groups housed in the School (Appendix B).

Given their diverse geographic expertise, our faculty are also uniquely positioned to explore these core interests at the global scale. Specifically, our faculty maintain active archaeological or paleoanthropological investigations in the U.S. Southwest and Midwest, Mesoamerica, the Mediterranean, northeast Asia, and northeast and southern Africa. They conduct primatological research in Uganda, Tanzania, and Kenya. And they have experience managing ethnographic and global health projects in the Arctic, Central America, North America, South America, East Asia, South Asia, Southeast Asia, northeast Africa, southern Africa, West Africa, East Africa, and Oceania.

2.5 Strengths and Challenges

Since its founding, one of the School's greatest strengths has been its people: a nationally and internationally visible faculty who are also collegial and institutionally minded; an effective and professional staff; and undergraduate, graduate students, and postdoctoral fellows who share a commitment to our core mission. This foundation has permitted the School both to adapt to and to leverage University-wide changes to expand research activities and to reach a larger number and greater diversity of learners.

2.5.1 Accomplishments. With the ongoing support of both the College and University, since 2011 we have accomplished the following.

1. Integration
    a. continued to develop our governance structures to ensure a greater voice for faculty and staff
2. Faculty
    a. increased research capacity and international prominence in evolutionary social science and evolutionary medicine
    b. increased external funding for research activities
    c. recruited research advancement and development staff to support SHESC's expanding activities
3. Instruction
    a. increased undergraduate research training with the Research Apprenticeship program

b. increased development outreach with SHESC-sponsored programs to support students in need
c. re-organized ideal graduate timelines and graduate funding to reduce time to completion
d. expanded new transdisciplinary degree programs in both in-person and online formats
e. increased both the quality and number of majors and our level of service to them
f. increased the quality and quantity of online instructional offerings

***2.5.2. Challenges*.** The current challenges we identify are mainly related to resources, and a number are ongoing challenges identified in the previous seven-year review:

1. Integration
    a. managing increased organizational complexity as the School continues to grow and develop
    b. building systems to promote greater diversity and inclusivity among both faculty and students
    c. fostering and integrating interdisciplinary programs (e.g., ESS, AMLSS)
    d. integrating and maintaining continuity in staffing to support the School's key missions
2. Faculty
    a. bolstering faculty in new and rapidly growing enrollment areas, especially Global Health
    b. maintaining faculty prominence in areas of recent and near-term anticipated faculty retirements, notably in the key area of bioarchaeology and environmental social science
3. Instruction
    a. ensuring quality and parity in our undergraduate instruction as enrollments increase across several learning modalities, including online
    b. developing streamlined systems for assessment, evaluation, and improvement of curricular offerings
    c. improving undergraduate retention at both the University and School level
    d. recruiting and supporting the best graduate students in light of shrinking recruitment and support money
    e. ensuring we meet the needs of graduate students as we move to focusing on higher-quality training of a smaller cohort of students

2.6. Strategic Directions

Our strategic goals for the next five years include a number of ongoing and emerging initiatives to solve these challenges and continue to expand on existing strengths.

2.6.1. Development of funding for student success. Beginning in January 2017 with the new Director, SHESC began focusing on raising money for student scholarships aimed at increasing access to experiential learning, such as research internships and study abroad. This funding is aimed at students who desire to do study abroad, but cannot afford it, as well as those who would benefit from a SHESC research internship (i.e., "Research Apprenticeships"), but do not have resources to take time away from a paying job. Towards this end, we had our first alumni and emeriti event in October 2017, and had the second one in October 2018. We have seen a small increase in donations in the last year. At this year's event, SHESC focused its funding requests on small dollars with big outcomes for Study Abroad. SHESC has also started working with the ASU Foundation on strategies that would help us contact donors that may be interested in anthropological, global health, and environmental research.

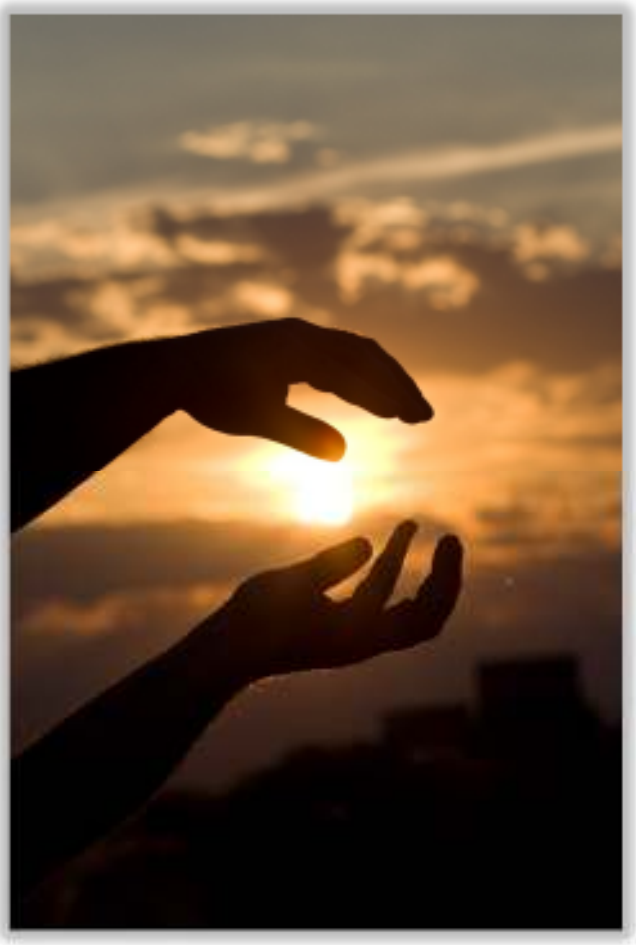
2.6.2. Promoting Inclusivity and Community Engagement. In Fall 2018, SHESC hired a Director of Inclusion and Community Engagement. The School seeks to actively and effectively promote a welcoming and productive environment both internally and externally, recognizing:

1. social science impacts local communities and is improved by engagement with local communities
2. strong and excellent social science both supports and reflects multiple perspectives and backgrounds in who conducts it, what they study, and how it is disseminated.

Relevant activities to advance these goals include: creating culturally affirming educational programs and events, bolstering the School's efforts to foster diversity and inclusivity, and advancing cultural and structural competency at all levels (e.g., preparing students for a diverse workforce). This will directly feed into development plans with exhibits in our Innovation Gallery being planned for some of these interfaces. These efforts will also dovetail with a recently funded NSF ADVANCE project in which SHESC faculty play key leadership roles (described in Faculty section).

SHESC points of pride

1) Over 1000 research apprentices trained in SHESC faculty labs and projects since 2011
2) #1 university in the U.S. for *research productivity* in anthropology
3) #1 university in the U.S. for *research expenditures* in anthropology
4) Longest running and largest undergraduate global health program in the U.S.
5) A highly collaborative and transdisciplinary faculty
6) A dedicated and professional staff



Section III

PEERS AND ASPIRATIONAL PEER COMPARISONS

3. Peer and Aspirational Peer Comparisons

3.1 Overview

A number of factors create challenges for clear-cut comparisons of our school with other units nationally. First, the transdisciplinary nature of our school and degree programs means there can be no single meaningful peer list. Second, the tendency for Global Health and AMLSS/Mathematical Biology programs in the U.S. to cut across multiple departments makes it difficult to estimate comparative indicators for faculty/staff capacity and research activity in these programs. Third, even within anthropology, traditional subfield distinctions are variously represented in different units, and in some cases have resulted in departmental schisms.

To facilitate comparisons, we separate analyses by SHESC's four degree programs—Anthropology, Global Health, Applied Math for the Life and Social Sciences, and Environmental Social Science. It is important to note, however, that dividing by program is a hypothetical exercise, because our activities and accomplishments depend on synergies between these programs that would likely disappear if they were truly divided.

For each of these programs, we selected peer and aspirational peer programs based on academic focus and strengths, degree offerings, faculty input, international rankings, and ASU's list of institutional peers. For anthropology in particular, we include universities that have combined strengths in evolutionary anthropology, archaeology, bioarchaeology, and sociocultural anthropology. When a university's programs in anthropology are distributed across multiple units (e.g., Harvard, Duke), the statistics for those units are combined.

3.2 Scope of comparison

We compare units by several indicators of—(1) instructional load, (2) faculty and staff capacity, and (3) research activity—providing a rough sketch across units. For instructional load, we provide graduate and undergraduate headcounts for all programs. Faculty and staff capacity at SHESC cannot be so simply divided, because faculty and staff often contribute to multiple programs. For faculty members, we count them as contributing to each of the programs to which they have primary or secondary approach membership. Thus, the sums of faculty numbers across the four programs are greater than the total faculty in the School. Allocating Staff FTE by program is impossible given that staff contribute to all degree programs. For that reason, we report staff numbers solely at the overall SHESC level. For research activity, we use NSF HERD data for 2017, which is only available for anthropology. We also counted research expenditures by SHESC investigator according to their primary and secondary approaches. We supplement these indicators with recent rankings of anthropology departments based on research productivity (College World University Rankings 2017, CWUR) and academic reputation (QS World University rankings 2017). The nascent fields of Global Health, Applied Math in the Life and Social Sciences, and Environmental Social Science are not represented in these rankings.

Table 3.2: Summary of Comparisons of SHESC and Peer and Aspirational Peer Institutions – Fall 2017

		Headcount (Degree-seeking)			Faculty			External Funding ($1000)		2017 Rank	
	Institution	UG	MA	PhD	Tenure Track[1]	Total FTE[1]	Staff FTE[2]	HERD 2017	Unit FY2017	CWUR[3]	QS[4]
	SHESC Overall	839	5	128	48	53.6	16.9	-	6,779	-	--
Anthropology	SHESC Anthropology	459	-	89	43	46.5	-	13,045	5,653	4	48
	Aspirational Peers										
	Harvard	154	-	91	24	37.2	17.2	1,742	274[8]	7	1
	Univ of MI, Ann Arbor	129	-	106	42	39.3	5.5[7]	5,672	1,572	nr	7
	UCLA	579	-	90	37	47	7.5	-	-	nr	9
	Yale	66	-	86	21	24	7	689	411	nr	12
	Duke	131	-	38	27	32.5	5.3[7]	938	2,897	nr	27
	Ohio State University	198	4	49	17	19	6	437	528	8	51-100
	Penn State University	95	3	28	18	27	5	3,521	1,983	nr	51-100
	George Washington	126	36	38	25	59	3.5	2,726	1,524	9	51-100
	UNC, Chapel Hill	144	-	59	28	28	3	353	642	nr	51-100
	UC Davis	246	-	75	25	24.5	9	-	939	nr	51-100
	Northwestern	97	-	52	20	24	4	842	131[5]	nr	51-100
	Univ of AZ	222	17	99	33	36.3	7.5	1,748	3,257	nr	51-100
	Emory University	143	-	40	22	23	5	-	517	nr	nr
	Median	143	-	59	25	28	5.6	1,340	1,420		
	ASU's rank	2	-	5	1	3	2	1	1	1	7
Global Health	SHESC Global Health	356	1	10	10	10	-		1,181		
	Duke	122	77	-	20	20	99	-	-	-	-
	UCSD	211	-	-	-	-	2	-	-	-	-
	Northwestern	105	18	-	6	4.25	2	-	-	-	-
	Median	122	47.5	-	13	12.1		-	-	-	
	ASU's rank	1	3	1	2	2	-	-	-	-	
AMLSS	SHESC AMLSS	24	-	22	2	2	-		313		
	NCSU	-	-	21	4		0	-	-	-	-
	U of Pittsburgh	20	-	-	4		0	-	-	-	-
ESS	SHESC ESS	-	-	11	10	9.7	-		1,360		
	UC Davis	208	22	-	22	22	5	-	-	-	-
MS	SHESC Museum Studies	-	4		2	2	-		-		
	Univ of Washington	-	68		0	4	3	-	-	-	-

1 Faculty includes all tenure/tenure track, lecturers, as well as clinical faculty and instructors based on state funding > 0.5 FTE

2 Administrative and technical support staff based on state funding

3 College World University Rankings (CWUR: number of articles in top-tier journals in a field the last 10 years. Only top ten reported.

4 QS World University Rankings based on Academic Reputation (70%), Employer reputation (10%), citations per paper (10%), h-index (10%).

5 Does not include largest sponsored funding for faculty which is managed outside of our department

6 Numbers from 2016 (Drain et al. 2017).

7 business office support is not reflected in the FTE provided. This also does not reflect research staff supported by grants.

8 only includes data for Human Evolutionary Biology program

- = not available, nr = not ranked

3.3. Analysis. Based indicators outlined below, the SHESC faculty and staff as a whole is performing at and often above par for our institutional peers, both in terms of research funding and teaching. That said, there is clearly room for growth in our graduate programs in Global Health, Environmental Social Science, and Museum Studies.

3.3.1. Instructional and Mentoring Load. SHESC has seen the greatest growth in undergraduate degrees in Anthropology and Global Health. Due to these increases, SHESC ranks first among peers and aspirational peers in these programs with three-fold more Anthropology and Global Health majors than our median peers. Indeed, our Global Health undergraduate program is the largest and longest-running in the country (Drain et al., 2017). Headcounts of majors in AMLSS are roughly comparable with peers. Anthropology graduate headcounts are 18% larger than our median peer counts (ASU 89 vs. peer median 75), and AMLSS headcounts are nearly threefold the headcounts of the one peer with a comparable graduate program. By contrast, Global Health, Environmental Social Sciences and Museum Studies appear to have opportunities for growth when compared with peer graduate programs.

3.3.2. Faculty Capacity and Staff Capacity. The size of SHESC's tenure-track Anthropology faculty is roughly 70% greater than our median peers. It is challenging to compare faculty capacity meaningfully in other programs, because such interdisciplinary programs often allocate faculty effort differently across universities. For example, AMLSS only has two faculty located in SHESC, but faculty from other departments also contribute greatly to advising and teaching for the program. By contrast, our Global Health program is supported largely by SHESC faculty, but programs at other universities often draw from faculty that are tenured in other programs to support their teaching and mentoring.

3.3.3. Research Activity. Roughly 90% of SHESC's faculty list an Anthropology subfield as either their primary or secondary approach, making anthropology the most appropriate discipline for comparative analysis of research activity. Counted in this way, SHESC compares favorably with both peers and aspirational peers, surpassing all peer units in terms of external research expenditures. Given this high level of research activity, it is not surprising that ASU recently ranked #1 in external research expenditures in anthropology (NSF HERD rankings 2017) and #1 in the U.S. for research productivity in anthropology (CWUR).

References

Drain, P. K., Mock, C., Toole, D., Rosenwald, A., Jehn, M., Csordas, T., ... & Wasserheit, J. N. (2017). The emergence of undergraduate majors in global health: systematic review of programs and recommendations for future directions. *The American journal of tropical medicine and hygiene*, 96(1), 16-23.

Section IV

UNDERGRADUATE EDUCATION

4. Undergraduate Education

4.1. Undergraduate Program Overview

SHESC has continued to be an innovator in undergraduate education, increasing access and maintaining a commitment to quality education led by tenure-track faculty. Since 2010, SHESC has launched three new undergraduate degree offerings (BS in Anthropology, online BA in Anthropology, and online BA in Global Health), and an undergraduate certificate in Social Science Research Methods. To expose students to the broadest range of global experiences, SHESC annually offers at least 10 faculty-led undergraduate study abroad and field schools as well as independent global internships. To encourage students to gain research experience with faculty projects, in 2011 the School also implemented its research apprenticeship program that has now trained nearly 1000 students in real-world research.

The innovative learning opportunities provided by SHESC have attracted many of Arizona's most promising students. Every year, the Flinn Scholarship Program provides a competitive financial package for undergraduate study at an Arizona public university for approximately 20 of Arizona's highest-achieving high school seniors. As a testament to the visibility, relevance and quality of SHESC's degree programs, since 2012, SHESC degree programs have attracted and graduated roughly 1 in 10 of all Flinn Scholars who have attended ASU.

In addition to increasing availability of innovative undergraduate training opportunities, SHESC has also aimed at increasing access. Since 2011, the percentage of graduating majors from under-represented minorities has increased from 26% to 37%. To further efforts at increasing inclusivity and student success, SHESC instituted an Early Start program in 2017 to prepare incoming students with the tools necessary to succeed in their first and future years at ASU and to connect them with SHESC faculty and staff.

Meanwhile, SHESC has experienced steady overall enrollment growth in undergraduate degree programs, with increases of 20% in majors, 40% in concurrent majors, and 55% in minors since 2011. This growth has been greatest in the Global Health degrees, with a 40% increase in majors, and more than doubling of minors and concurrent majors. SHESC has also grown its overall course offerings, increasing undergraduate course FTEs by 65% in lower division and 74% in upper division course.

A foundation of SHESC's ability to serve this growing number of undergraduates is an award-winning faculty of committed educators who regularly garner university and national acclaim for the efforts. The growth has also been fueled by great strides in instructional innovation, including the use of new online tools (e.g., hybrid classrooms, virtual field trips and labs) to increase the range of learning opportunities. As of 2018, over 60% of tenured and tenure-track faculty having experience providing online and hybrid courses in addition to in–person courses.

4.2. Description of SHESC Undergraduate Degree Programs

Today, SHESC administers four undergraduate degrees in Anthropology (BA and BS), Global Health (BA), and Applied Math in the Life and Social Sciences (BS), with minors available in Anthropology and Global Health, and a certificate in social science research methods. The BA degrees in Anthropology and Global Health are offered both in-person and online. This section describes each of the SHESC undergraduate degrees and their requirements presented in boxes.

In addition to specific major requirements, graduation with a baccalaureate degree from ASU requires a minimum: (1) of 120 semester hours overall and 45 semester hours in upper-division courses, (2) cumulative grade point average of 2.00, and (3) of 35 semester hours of approved General Studies course work. To complete the General Studies requirement, student must take: (1) six semester hours in two of three awareness areas (Cultural Diversity in the U.S., Global Awareness, and Historical Awareness), (2) six hours of Literacy and Critical Inquiry courses (including one upper division), (3) six hours of Numeracy courses, (3) eight hours in Natural Sciences courses, and (4) a total of 15 hours across Humanities and Fine Arts courses and Social and Behavioral Sciences courses with a minimum of 6 hours in each. In addition, all students must complete a First Year Seminar and an English Composition Requirement (both ENG 101 and 102; or 105; or 107 and 108).

The College of Liberal Arts and Sciences also requires completing a mathematics course in college algebra or higher. In addition, Bachelor of Arts students must demonstrate intermediate proficiency in a second language, which can be fulfilled by foreign language through a fourth semester. Bachelor of Science students must complete 6 hours in Science and Society designated classes (including one upper division course). No credit is granted toward fulfilling major, minor or college requirements unless the grade is at least a ‘C’.

The standards for satisfactory academic progress are based on policies set by the University (https://students.asu.edu/policies/satisfactory-academic-progress) and the College of Liberal Arts and Sciences. There are three components to the policy. First, students must maintain a minimum cumulative GPA of 2.0. Second, they must meet a pace rate standard, by passing at least 67% of their total attempted ASU credit hours. Finally, they must meet a maximum credit hour standard, by not exceeding the maximum attempted credit hour limit (180 hours).

Anthropology (BA). The BA program in Anthropology gives students an opportunity to learn how and why humans evolved and how our evolutionary biological, social and cultural trajectories help us understand what it means to be human in past, present, and future environments. In this degree program students learn how to use the scientific method to formulate and test hypotheses and gather qualitative and quantitative data through participant observation, interviewing, ethnographic study, careful excavation, and measurement. They also learn how to employ statistics to analyze and extract meaning from data. A special feature of the ASU Anthropology program is its many exciting hands-on learning opportunities in laboratories and through study abroad and field-based courses. The Anthropology BA (revised in 2012) consists of a minimum of 31 semester hours in anthropology and a minimum of 3 semester hours in statistics. At least 18 of the semester hours must be in upper-division courses (300-400 level).

SHESC BA in Anthropology

Required Intro Courses (10 units)
ASM 104 Bones, Stones and Human Evolution (4)
ASB 102 Intro to Cultural and Social Anthropology (3)
ASB 222 Buried Cities and Lost Tribes: Our Human Heritage (3)
OR
ASB 223 Buried Civilizations of the Americas (3)

Upper Division Foundational (9 units)
Sociocultural (3)
Archaeology (3)
Physical Anthropology (3)

Statistics (3 units)
Practicum (3 upper division)
Electives (6 upper division)

Anthropology (BS). The BS program in Anthropology gives students an opportunity to master anthropological or anthropologically relevant knowledge and skills through applications of the scientific method and quantitative methodologies. In core and elective courses, the bachelor's degree program in Anthropology allows students to explore problems that may require the use of theories and methods from diverse disciplines, including biology, global health, applied mathematics, psychology, economics, sociology, medicine, law, and engineering. The curriculum provides many exciting, hands-on learning opportunities through laboratories, study abroad and field-based courses. The BS is designed for students who want to concentrate on science- and mathematics-based anthropology courses, and it requires calculus and an upper-division statistics course.

The BS (revised in 2016) requires a minimum of 36 or 37 semester hours in anthropology and a minimum of 3 upper-division semester hours in statistics and at least one college-level calculus course. At least 18 of the semester hours must be in upper-division courses (300-400 level). Please see advising sheet appendices for more info.

SHESC BS in Anthropology

Required Intro Courses (9 or 10 units)
ASM 104 Bones, Stones and Human Evolution (4)
ASB 102 Intro to Cultural and Social Anthropology (3)
ASB 222 Buried Cities and Lost Tribes: Our Human Heritage (3)
OR
ASB 223 Buried Civilizations of the Americas (3)

Core Course (3 units)
ASM 300 Anthropological Science Seminar

Anthropological Science Courses (12 units)

Calculus (3 units)
Statistics (3 upper division)
Electives (12 units)

Global Health (BA). The BA in Global Health is a transdisciplinary degree program designed for students who seek a broad and flexible set of skills for understanding contemporary health challenges and thinking about how they might best be solved. *Global* is understood in the anthropological sense, meaning ways of understanding and addressing disease, health and well-being that can incorporate all cultures, places and time and that can integrate knowledge of health's social, historical, biological, and ecological dimensions. The curriculum emphasizes the development of core skills in critical thinking, problem-solving, and the importance of direct experience (research, study abroad, service learning, and advocacy). The program cultivates capacities to deal with any complex problem with social components: how to identify the critical issues, ask the right questions, and create solutions that are meaningful and effective.

The Global Health BA (revised 2014) requires 33 credits of course work. Students must take an introductory course; an evolutionary/time depth course; a poverty/social justice course; a culture, society, and health course; a practicum; and elective courses. In addition, all students must participate in an approved study abroad program led by our program faculty.

SHESC BA in Global Health

Intro Course (3 units)
ASB 100 Intro to Global Health (3)

Global Health Core (9 upper division)
Evolutionary/Time Depth (3)
Poverty and Social Justice (3)
Culture, Society and Health (3)

Epidemiology or Statistics (3 units)
Practicum (3 upper division)
Study Abroad (6 upper division)
Global Health Electives (9 units)

Applied Math in the Life and Social Sciences (BS). The BS degree program in applied mathematics for the life and social sciences offers a challenging and exciting curriculum that investigates and integrates complex areas of the physical, life, and social sciences while preparing a new generation skilled in the use of theories and techniques such as mathematical modeling and computational methods to solve practical real-world problems. The program focuses on the development of critical-thinking skills and purposeful competencies in mathematics. It instills an appreciation for the contributions of mathematics to the fields of sciences, engineering, business, government, and economics. Coursework is directed toward an understanding of mathematical theory and its relation to other fields of studies. Emphasis is placed on precision of definition, reasoning to accurate conclusions, and analyzing and developing solutions to problems using mathematical principles.

The AMLSS BA (revised 2013) requires 33 credits of course work, and includes a number of prerequisites in programming, general biology, calculus, differential equations, and linear algebra.

SHESC BS in Applied Math

Intro Course (3 units)
AML 100 Intro to Applied Math (3)

Modeling Course (3 units)
AML 253 Intro to Math Tools and Modeling (3)

Life Sciences (6 units)
Social Sciences (6 units)

Applied Math (6 units)
Capstone (3 units)
Electives (6 units)

Anthropology (Minor). The minor program in Anthropology provides students with a great deal of flexibility in selecting courses. The program has been designed to allow students to focus on areas within the discipline that articulate well with their major. The Anthropology minor consists of 18 credits: 6 lower-division credits and 12 upper-division credits. You must choose 2 of the anthropology introductory courses (ASB 102, ASB 222/223, or ASM 104) and 4 upper-division anthropology classes in at least two subdisciplines.

Global Health (Minor). The minor in Global Health is a transdisciplinary program designed for students who seek a broad and flexible set of skills for understanding contemporary health challenges and thinking about how they might best be solved. Global health is understood in the anthropological sense, meaning ways of understanding and addressing disease, health and well-being that can incorporate all cultures, places, and time and that can integrate knowledge of health's social, historical, biological, and ecological dimensions. Students take 18 credit hours, of which 12 must be at the 300 or 400 level. At least 12 credits must be ASU credits, and the study abroad requirement must be taken at ASU on one of our School of Human Evolution and Social Change programs.

Social Science Research Methods (Certificate). This certificate program prepares students to acquire, manage, and analyze a broad range of data on human thought and human behavior. Data can be qualitative (e.g., text, images, sound) or quantitative (e.g., direct observation, surveys, GIS). Data acquisition skills may include the downloading and managing of information from online sources or the primary collection of data in surveys or by direct observation. A key feature of this program is a focus on data analysis so that students will be able to analyze any data they collect. All students in this program will demonstrate skills in statistical analysis plus skills in a selection of methods related to their interests. The certificate requires a minimum number 15 semester hours of approved methods courses of which at least 12 must be upper division. It also requires a Capstone Experience fulfilled by either ASB 499 individualized instruction or an equivalent capstone course (3 hours).

4.3. Program Analysis

SHESC has experienced steady overall enrollment growth in undergraduate degree programs since the end of the last program review period, with increases of 20% in majors, 40% in concurrent majors, and 55% in minors. Simultaneously, SHESC's share of majors in the College of Liberal Arts and Sciences has increased from 3.7 to 4.2%. This growth has been greatest in the Global Health degrees, with a 61% increase in majors, and more than doubling of minors and concurrent majors. Meanwhile, enrollment in the Anthropology and AMLSS degrees has remained relatively constant (Tables 4.3a and 4.3b). New online degree offerings have played a crucial role in this growth (Figure 4.3a), with online enrollments in both Global Health and Anthropology offsetting declines in the on-campus BA in Anthropology degrees. Notably, the online BA in Anthropology has experienced rapid growth in the last two years, and now has double the enrollment of the on-campus BA. See advising worksheets in Appendix C.

Table 4.3a: Current Undergraduate Degree Programs Offered by Unit

		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Anth (BA)	**Headcount (Fall)**	350	299	255	212	181	315	366
	Sr. headcount (Fall)	137	136	128	101	77	107	128
	Degrees awarded[1]	96	92	93	88	68	73	76
	Graduation Ratio[2]	0.70	0.68	0.73	0.87	0.88	0.68	0.59
Anth (BS)	**Headcount (Fall)**	100	131	126	123	120	104	93
	Sr. headcount (Fall)	28	49	54	56	62	48	36
	Degrees awarded[1]	11	28	31	35	47	33	37
	Graduation Ratio[2]	0.39	0.57	0.57	0.63	0.76	0.69	1.02
GH (BA)	**Headcount (Fall)**	220	254	239	280	351	386	356
	Sr. headcount (Fall)	82	84	87	83	119	146	142
	Degrees awarded[1]	44	57	60	61	73	95	98
	Graduation Ratio[2]	0.54	0.68	0.69	0.73	0.61	0.65	0.69
AMLSS (BS)	**Headcount (Fall)**	20	25	24	26	26	22	24
	Sr. headcount (Fall)	10	11	12	11	6	7	6
	Degrees awarded[1]	6	5	5	7	6	3	4
	Graduation Ratio[2]	0.60	0.45	0.42	0.64	1.0	0.43	0.67

1 Total degrees awarded for academic year (summer, fall and spring semester)

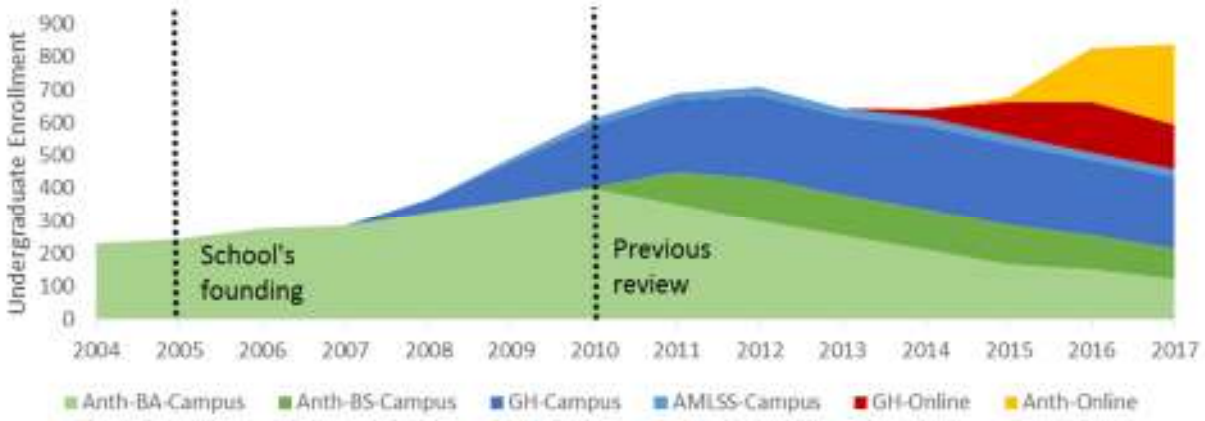
2 Percentage of degrees awarded/senior headcount

Table 4.3b: Headcount of Students Concurrently Enrolled in Majors or Undergraduate Certificates in the Unit (Fall enrollment Headcount)

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Anth (BA)	28	22	24	19	23	21	24
Anth (BS)	9	7	12	8	11	13	19
Global Health (BA)	10	13	20	24	22	20	22
AMLSS (BS)	-	2	2	1	-	-	1
Anth (Minor)	89	73	71	73	73	86	112
Global Health (Minor)	32	53	57	49	60	60	76

Figure 4.3a illustrates how our undergraduate programs have grown historically through sequential adaptations deriving from our school's strengths. The first was the introduction of new programs in Global Health (BA) in 2007 and Anthropology (BS) in 2010, which led to dramatic enrollment growth. The second was the development of online BA programs in Global Health and Anthropology in 2013 which permitted increasing growth in enrollment despite declines in in-person majors.

Figure 4.3a. Changing enrollment by on-campus and online immersion degrees. GH = Global Health, Anth = Anthropology.



4.3.1 New programs. SHESC has also been involved in ASU-wide initiatives including the development of a new undergraduate degree program in Data Science. This new degree program (planned for 2020), which will be housed within the School of Mathematical and Statistical Sciences, would offer students training in data science methods and programming along with training in another field within the College of Liberal Arts and Sciences. SHESC is currently developing concentrations which will allows Data Science majors to specialize in Anthropology or Global Health.

4.3.2. Promoting inclusivity and student success. SHESC is committed to maintaining an inclusive student body and encouraging student success. Over the last 7 years, the proportions of minority and female students in SHESC majors have increased (34% to 39% and 69% to 75%, respectively), both exceeding CLAS levels (35% and 55%). Four-year graduation rates (49.3%) for SHESC majors are roughly comparable to those at the College of Liberal Arts and Sciences (CLAS, 51%) (Table 4.3.2a). Meanwhile, first-year ASU persistence rates of SHESC students increased from 78% to 81%, but still leaves room for improvement when compared with CLAS rates (86%).

Table 4.3.2a: Graduation Rates of First-time, Full-time Freshman Entering Cohort (% graduating by most recent fall semester)

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	CLAS 2013-2014
Headcount of 1st-time, Full-time Freshman	94	84	75	72	66	48	NA	NA
Dept. graduation rate[1]	30.9%	48.8%	29.3%	4.2%	0%	0%	NA	31%
Within ASU graduation rate[1]	58.5%	73.8%	49.3%	5.6%	0%	0%	NA	51%

1 Percentage of freshman cohort who graduated by most recent fall semester.
2 ASU and CLAS values are for 2013-2014 incoming first years

The School has taken a number of steps to improve graduation rates and first-year persistence. In 2016, our school assembled a faculty committee to analyze data on student retention, which showed that the students at greatest risk for leaving ASU are under-represented minorities, first-generation college students, and non-residents. In response, we were early adopters of a first-year Early Start program for at-risk students with the goal of promoting an inclusive class and improving retention rates to 90%. The Early Start program allows students to live on campus for two weeks prior to the start of classes. During the program, students meet faculty and academic support professionals in the School, take expert-guided field trips that explore the School's research and educational collections, participate in outreach activities through "Ask an Anthropologist", and practice skills aimed at improving academic success.

The Early Start Program supplements other efforts by the School to support students in ways that decrease time to completion, increase retention and completion rates, and enhance the undergraduate student experience. The School invests in a team of four professional student advisors to meet the demands of our more than 900 majors and minors. This includes a director of student and academic services who supervises advising and program staff, manages curricula, scheduling, and faculty instruction to promote a more cohesive, thoughtful, and organized program of undergraduate education. The staff work closely with SHESC's Director of Undergraduate Studies to ensure that courses students need to graduate are offered, that faculty workloads can be planned well in advance in accordance with programmatic needs, and that students can plan their schedules effectively beyond one year in advance. The staff's efforts have likely contributed a great deal to improving student satisfaction with course advising and availability of required courses (see below).

Table 4.3.2b: Undergraduate Student Profile

		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	CLAS
Total Undergrad headcount (Fall)		690	709	644	641	678	827	839	NA
% women		69.0%	70.8%	69.6%	71.8%	73.2%	72.2%	75.2%	55.4%
% ethnicity	**American Indian**	1.6%	2.0%	2.3%	1.7%	1.6%	1.3%	0.8%	1.2%
	Asian American	5.4%	5.1%	5.0%	4.5%	6.0%	4.6%	5.0%	5.9%
	Pacific Islander	0.7%	0.3%	0.3%	0.5%	0.3%	0.4%	0.2%	0.3%
	African American	6.4%	6.3%	6.7%	5.1%	5.9%	4.6%	5.1%	5.5%
	Hispanic	17.1%	19.2%	19.4%	20.9%	20.9%	20.7%	21.2%	22.2%
	2 or More Races	2.9%	3.1%	3.9%	4.7%	5.5%	5.7%	6.1%	4.6%
	White	61.4%	60.6%	60.7%	60.7%	57.4%	60.0%	58.5%	54.6%
	Unknown	3.8%	3.0%	1.2%	0.8%	0.7%	0.6%	0.6%	0.4%
% Minority total		34.1%	36.0%	37.6%	37.4%	40.3%	37.2%	38.5%	34.5%
% International		0.7%	0.4%	0.5%	1.1%	1.6%	2.2%	2.4%	5.3%
% returning freshman to univ. [2]		77.7%	85.7%	81.3%	80.6%	83.3%	81.3%	NA	86%
% returning freshman to dept. [3]		57.4%	61.9%	42.7%	52.8%	60.6%	52.1%	NA	60%
Total Degrees awarded		157	182	189	191	194	204	215	NA

2 Percentage of first-time,full-time freshman who returned to the university for a second year.

3 Percentage of first-time,full-time freshman who returned to the department for a second year.

Each advisor sees between 50-75 students during a high-peak week for face-to-face and telephone appointments in addition to answering student questions through email and by phone. Our advising philosophy is to be proactive and ensure all information is readily and clearly accessible to students in what can be an overwhelmingly large university. The advising staff use the University's Advising portal in Salesforce to follow up with students who are off-track in the major, on probation, or who have notes in their academic status report indicating low performance. If students are not staying "on-track" then our advisors work with them to find a suitable major in which they can be successful.

Our advisors have updated the undergraduate portion of our webpage to include important information such as core requirements, a listing of courses offered each semester

and what requirements they can fulfill, and FAQs in order for students to easily reach the information they need in a timely manner. Our webpage also has a dedicated "Student Life" page that outlines how students can get involved in research, study abroad/field school programs, undergraduate student associations, College programs, University internships, among others.

In addition to counseling students on academics, our advisors are in charge of outreach and retention. From the outset, our advisors arrange School events such as the "Fall Welcome," which is part of the larger University's fall kick-off program where incoming freshman are invited to learn about our school and ways to get involved as well as meeting faculty, staff and current students. To support students during their career at SHESC, advisors arrange workshops such as "How to Get into Graduate School" to get students connected to the correct information and people. And to send students off properly, our advisors arrange a fall and spring Convocation Reception in order for our faculty and staff to congratulate graduating seniors and meet their families.

To improve first year persistence, in Fall 2011, SHESC began requiring all incoming first year students to enroll in an "Academic Success Cluster." From 2011-2017, students in a cluster took the University's required 1-credit freshman seminar (LIA 194) as well as two introductory courses for their major taught by our core faculty. Composed of 19 students, each cluster serves as a cohort building tool and to make connections with students who might otherwise fall through the cracks. This model was revised in Fall 2018 with the inception of the College's advising hub. Incoming freshmen are still participating in a cluster based on the following courses: (1) 2 of their required SHESC major-specific intro classes, and (2) a required First-Year Seminar (now LIA 101: Student Success in CLAS). However, the seminar class is now being taught by the social sciences advising staff from the College hub.

SHESC takes a number of other approaches to create and maintain community among our majors and faculty, especially with such rapid growth in majors. In 2009, the School dedicated an underused conference room in our main SHESC building as the official "Undergraduate Student Lounge" so that students feel as though they have a home here. Students use this space during the semester for studying, resting, and conducting meetings. The 2017 renovation of SHESC's entrance and innovation gallery has created another common space for students to study and to gather at the School's major crossroads. SHESC also has two student-run undergraduate organizations, the Undergraduate Anthropology Association and the Global Health Student Association. Our staff advisors work closely with these organizations to cultivate ideas on how to recruit students to get involved as well as supporting them in organizing events.

Finally, a number of awards recognize students who have excelled in academics, research, and their contribution to SHESC's mission. SHESC awards the Alumni Award for graduating seniors who showed exceptional scholarship in both their major and research and CLAS awards the Dean's Circle Scholarship worth $1,000. These recipients are recognized at both our Fall and Spring Awards Ceremony.

4.3.3. Innovation in teaching. SHESC has been a leading innovator in undergraduate teaching and mentoring through the development of hands-on research experiences, online and virtual instruction, community outreach courses, and a wide range of faculty-led study abroad experiences for students.

Learning by doing. In Fall 2011, SHESC instituted the Undergraduate Research Apprenticeship Program to encourage undergraduates to get involved with faculty research. Every semester, SHESC advising staff solicit undergrad research opportunities from faculty. They then advertise these opportunities to SHESC undergraduates and collect and distribute student applications to faculty for selection into their projects. Over the past 7 years, the program has grown steadily, and has now trained nearly 1000 undergraduates in research projects led by over 50 faculty, postdocs, and staff.

SHESC faculty are also spearheading opportunities for groups of undergraduates to learn through engaging with local communities. As one example, one of our faculty (Jehn), has developed a Student Outbreak Response Team (SORT) for ASU undergraduate Global Health students interested in community health. Beyond training students in applied social science research methods, the program creates trained surge capacity for health departments, increases collaboration between our undergraduate Global Health program and state/local health departments, and increases the number of students being placed in health departments for projects, internships, and jobs following graduation. The ASU program is a unique hybrid of a student outbreak response team and a service learning public health course. Like other service learning courses, students are required to spend a large amount of their coursework interacting with the public; but unlike many other community engaged experiences, SORT students work to collect data and conduct analyses for health departments related to outbreak investigations as well as perform routine surveillance activities for infectious diseases. This Fall 2018, students received training in interviewing techniques and data collection from epidemiologists at the state health department, they traveled to a local reservation to investigate an outbreak of Rocky Mountain Spotted Fever in collaboration with the Centers for Disease Control and Prevention, participated in a planning meeting for a large, state-wide public health bioterrorism exercise, analyzed zoonotic disease data, and prepared reports for the Vector-borne and Zoonotic Disease Program Manager at Arizona's Department of Health Services.

To encourage students to design and conduct their own research, SHESC annually provides four Undergraduate Research Assistantships worth $1,000 for projects directly supervised by our faculty. In addition, faculty mentor students in developing proposals for Research Experiences for Undergraduates (4 between 2011-2018) as well as college and university-level award competitions. Since Spring 2011, SHESC has organized an annual Undergraduate Research Symposium (15-25 presenters annually) which permits students to highlight their research as well as get experience speaking to an audience. Not only do these programs enhance our students' education and foster skill building, they also serve as a powerful retention tool. These experiences also make our students particularly well-equipped

to design their own studies for competitive University-wide awards, such as highly selective Circumnavigator/Intercontinental Fellowships which provide substantial funding and support for students' multi-country projects (3 SHESC recipients since 2012; award given to 1-2 ASU students every year)

Research Methods. One of the strengths of our school is the depth and breadth of faculty expertise in research methods. Our goal is to prepare students to acquire, manage, and analyze a broad range of data. In addition to undergraduate courses with lab components and courses specializing in qualitative and quantitative analysis, students can also gain expertise in research methods through SHESC's Undergraduate Research Apprentice Program and upper-division practicum and internship opportunities. In 2015, The Institute of Social Science Research (ISSR) was also re-organized to provide additional support for undergraduate training in social science research including an undergraduate certificate in social science research methods, scholarships for summer research scholarships, and workshops and training activities.

Online Instruction. Our undergraduate programs have maintained a high degree of quality despite significant increases in enrollment in recent years. Our faculty and staff have managed these increases in part by leveraging new online learning technologies. This has included the development of online degree programs (BAs in Anthropology and Global Health), and a significant number of new online course offerings (25 courses). These options allow for flexibility in schedule and location that meet the needs of our diverse student body. Some of the online experiences developed for students include:

- Two fully online degree programs in Global Health and Anthropology. SHESC was the first online degree in Global Health in the US and currently has the largest online Global Health degree program.
- Two virtual field experiences for students: Biological Anthropology lab (ASM 104) and the Teotihuacan field trip. ASM 104 provides a 3D virtual classroom experience for online students. In this innovative course, we have essentially created a 3D version of a human evolution laboratory that students can access from around the world.
- *Human Origins*, taught by Don Johanson, is part of Global Freshman Academy which allows individuals of all backgrounds the opportunity to take the same courses, from the same faculty as on-campus ASU students. Through this program, students earn transferable ASU credit from anywhere in the world, and pay tuition only if they choose to apply the credit to their institution. Since 2015, the course has generated large enrollments around the world (over 25,000 overall and 710 for ASU credit) with more than 144 countries represented in a single semester. The course received the President's award for Innovation in 2017 and was recognized in Phoenix Magazine's Best of the Valley issue as the "Best Free Class taught by a Celebrity Scientist" in October 2016.

Study Abroad, Field Schools and Global Internships. SHESC faculty and staff also support a diverse range of study abroad programs, field schools, and global internships (Table 4.3.3). In the past 4 years, SHESC has expanded the number of unique faculty-led study abroad programs and global internship programs while also maintaining two field schools. These programs have traditionally been offered over the summer, but the School has begun to develop offerings during the academic year semesters. SHESC also hopes to relaunch the Hadar Field School (Ethiopia) which was last offered in 2012 (expected fall of 2019 or 2020). Finally, SHESC partners with other programs to provide students global internship opportunities in India (AIDS Education in Chennai), Peru (Community Partnerships in Global Health), and Tanzania (HIV/AIDS + Public Health Education Service-Learning).

Table 4.3.3. Faculty-led study abroad programs regularly offered

Location	Program	Students (2016)
Australia	Human Dimensions of Sustainability and Health	23
London	Plague Pits and Body Snatchers: History of Health and Disease in a Global City	19
France	Food and Culture	25
New Zealand	Adventures in Culture, Health, Sustainability and Environment	38
Peru	Peruvian Food and Culture: From the Inkas to World Class Haute Cuisine	New in 2018
South Africa	Ecology, Evolution, and the Peoples of South Africa	New for 2019
Spain	Immigrants, Indigenes and Imperialists	UD
Tanzania	Global Intensive Experience: Breastfeeding	UD
Fiji	Culture, Environment, History, and Health	11
U.S.	Kampsville Field School in Archeology*	22
Guatemala	Community Health and Medical Anthropology*	11 (2015)

*Field school, **Global Internship, N= new in 2017, UD = under development,

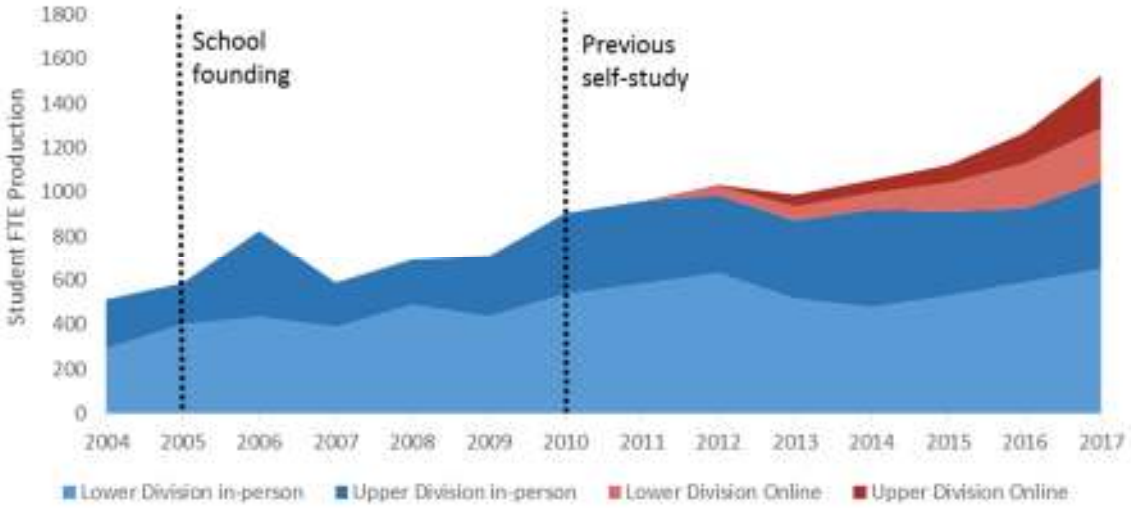
4.3.4. Other Curricular Offerings. In addition to contributing to growing degree programs, SHESC's faculty serve the university's broader educational goals in a number of ways. Since the previous self-study, the unit has increased overall course enrollments by more than 65% in lower division course and 74% in upper division courses (Figure 4.3.4, Table 4.3.4).

Through thesis mentoring and research engagement, SHESC faculty members also support the educational mission of Barrett, the Honors College at Arizona State University. Two faculty members from Anthropology and Global Health serve as Honors Faculty Advisors, providing guidance for SHESC's honors majors (79 Global Health, 37 Anthropology) and minors (29 Global Health, 10 Anthropology) during their undergraduate career and in preparation for their honors theses. The number of honors theses completed under the supervision of a SHESC faculty member has increased from 2 in 2010-2011 to 17 in 2017-2018, and between 2011 and 2018, 28 SHESC faculty have directed over 90 honors theses. In 2016, SHESC centers also began a new partnership with the Barrett Honors College Fellows program to give honors students first-hand experience with faculty research projects. As part of this program, 4 to 6 Fellows annually have worked in faculty labs affiliated with the Center for Global Health and the Center for Bioarchaeological Research.

Table 4.3.4. Other Curricular Initiatives

A. Service Course contributions	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Lower Division Undergrad Student FTE	583	672	580	552	656	793	886
Upper Division Undergrad Student FTE	376	361	408	502	466	474	640

Figure 4.3.4. Historical trends in undergraduate course FTEs by division and modality



4.4. Quality of Instruction and Undergraduate Satisfaction

Maintaining high quality undergraduate mentoring and instruction has been a major concern as SHESC has grown the roster of majors and course offerings in both in-person and online formats. We have already outlined a number of strategies we use to improve the undergraduate experience and to encourage student success. We can assess the quality of our service to ASU students by a number of benchmarks, including feedback from recent alumni, student course evaluations, learning outcomes assessment reports, and our students' post-graduate trajectories.

Feedback from alumni indicates that SHESC has substantially improved how its faculty mentors students in communications skills (writing and speaking), computer skills, and work-related knowledge and skills compared to the previous self-study (Table 4.4a, Figure 4.4b). This suggests that efforts made since the previous self-study to improve our L (Literacy) courses and to increase opportunities for computer-based training have yielded returns. Despite these marked improvements, there is still room for improvement in these professional skills relative to CLAS averages.

Figure 4.4a. Undergraduate Student Satisfaction Survey: SHESC 2016-2017 compared to SHESC 2004-2010 and CLAS 2016-2017. % of graduating seniors who say experiences at ASU contributed 'very much' or 'quite a bit' to knowledge, skills, and personal development in the following areas

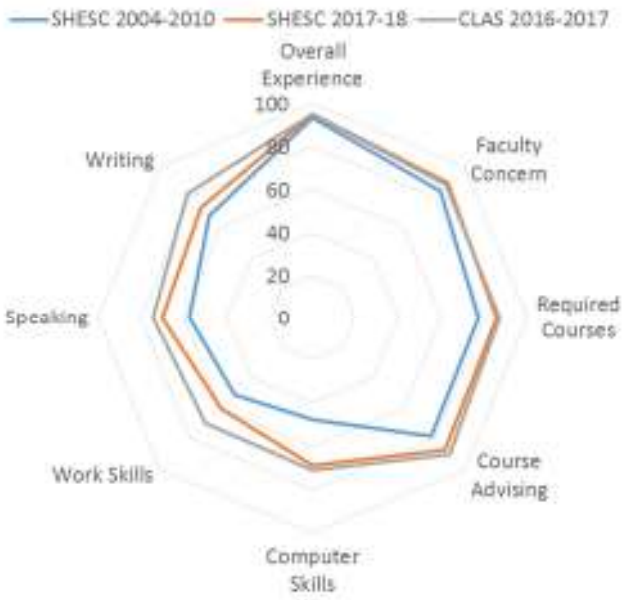


Table 4.4a: Undergraduate Student Satisfaction Survey. % of graduating seniors who say experiences at ASU contributed 'very much' or 'quite a bit' to knowledge, skills, and personal development in the following areas

Student Satisfaction Item	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	College
Speaking clearly and effectively	60%	63%	61%	63%	81%	73%	70%	74%
Using computer and IT	55%	46%	60%	54%	68%	65%	69%	71%
Writing clearly and effectively	67%	72%	66%	73%	84%	76%	73%	82%
Acquiring work-related knowledge and skills	59%	58%	58%	64%	67%	67%	60%	70%
Overall academic experience in major	92%	92%	87%	93%	97%	91%	95%	95%
Concern of faculty for individual students	79%	85%	82%	87%	87%	87%	89%	88%
College/Department advising on courses and requirements	85%	85%	86%	91%	97%	88%	87%	90%
Availability of required courses	75%	81%	83%	84%	86%	84%	86%	87%

1 From Graduating Senior Report Card. Percent of graduating seniors who say experiences at ASU contributed 'very much' or 'quite a bit' to knowledge, skills, and personal development in the following area

2 CLAS values for 2016-2017 graduates. 2017-2018 alumni surveys not available.

SHESC also evaluates individual courses through anonymous student responses to surveys collected by the university (1 to 5 with 1 = excellent). Despite the rapid expansion of degree programs and increasing section sizes, new faculty, and new courses, our very high mean teaching scores have been maintained at all levels and across online and in-person formats (see Table 4.4b, Figure 4.4b). Of the over 800 undergraduate sections taught since 2011, the mean rating for instructors was 1.46 (SD=0.42) for upper division courses and 1.56 (SD=0.39) for lower division courses. These scores are roughly equivalent to evaluations from the prior review period (upper division mean = 1.41, SD = 0.40; lower division mean = 1.72, SD = 0.46). Notably, students also give instructors of our on-line courses on average higher marks. This trend is especially true in lower division courses, which attenuates differences between lower and upper division course evaluations often observed in our in-person courses (Figure 4.4b).

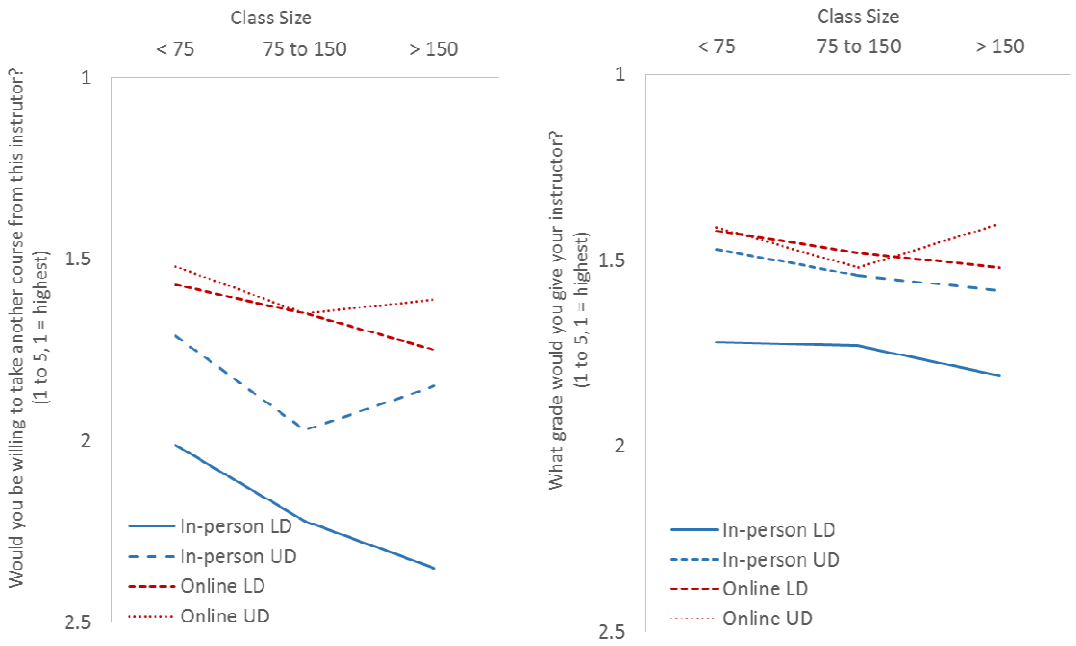
Figure 4.4b. Student course evaluations by level (sections, 2011-2018).

	Take Another Class with Instructor (Q12)	Instructor Rating (Q13)
Lower Division (n=285)	1.82 (0.55)	1.56 (0.39)
Upper Division (n=437)	1.66 (0.55)	1.46 (0.42)
Graduate (n=178)	1.47 (0.57)	1.29 (0.43)

Q12: Would you be willing to take another course from this instructor?

Q13: What overall grade would you give this instructor?
1= A/excellent/ strongly agree and the best possible score, a lower score is better.

Figure 4.4b. Course Evaluations by class size, level, and modality (n=838, 2011-2018)



The 2017-18 Annual Learning Outcomes and Assessment Report filed with the University Office of Evaluation and Educational Effectiveness (UOEEE) shows that the School is meeting its learning outcome goals (See section 6). Our core learning outcomes include 1) the ability to use practical applications of methods and theories in data collection and analysis; and 2) being able to apply verbally and in writing key concepts from their fields. We measure these goals by assessing a variety of factors including practical experiences such as study abroad, field schools and internships, as well as project development and execution in practicum courses and papers/projects carried out in upper division courses. We discovered that our courses designed for the major and our experiential learning activities (i.e. study abroad, field schools and research internships) are meeting our educational goals across all our undergraduate degrees. As a result, we will continue to increase our offerings of these types of practical experiences and upper division courses.

Our students' post-graduate trajectories provide one additional metric of our programs' success. According to alumni surveys conducted by ASU's Office of Evaluation and Educational Effectiveness, three years after graduation, 88.7% were employed (63.5% full-time) and only 5.6% were not employed and looking for work. Of those who were employed more than half (54.5%) were in positions either closely or somewhat related to their field. Nearly a third (34.9%) were pursuing graduate studies. Since our online degrees began only recently, we are not in a position to compare placement of graduates from online degrees compared to in-person degrees. However, in the next few years, we will have our first sizable cohorts graduating, and this will give us information for tailoring the program to ensure success after graduation.

Our alumni have also served in programs such as Americorps, Teach for America, Global Health Corps, and the Peace Corps and have been selected for a number of prestigious post-graduate fellowships in Anthropology and Global Health:

1. Marshall Scholarship (1)
2. Gates Cambridge Fellowship (1)
3. Fulbright Scholarships (6)
4. Institute for Health Metrics and Evaluation Fellowships (2)
5. Hartley and Ruth B. Barker Endowed Global Grant Scholarships (1)
6. Pickering Foreign Affairs Fellowship (1)
7. CDC Public Health Associates Program (1)
8. Arizona Legislative Internships (2)

4.5. Strategic Directions of the Undergraduate Program

SHESC faculty and staff have maintained an undergraduate program of high quality despite significant increases in enrollment and the complexity of degree programs. We have managed these increases by developing fully online degree programs, implementing a significant number of new online course offerings, and offering hybrid introductory courses. These options support a diverse student body by facilitating flexibility in schedule and location. Additionally, we have made significant improvements to the undergraduate program overall (both online and in-person) by increasing access to methods training, developing a freshman early start program to increase retention, expanding our capacity to advise honors students, enlarging the number of unique study abroad programs offered, and offering training and mentoring for faculty to improve their teaching.

As our instruction moves increasingly into online formats, the School will also need to develop ways to provide the full range of training opportunities to students in all formats. Our faculty and staff have already developed innovative approaches to incorporating labs and methods activities as well as long-distance advising and virtual office hours into online formats. We are also building systems for peer review of online teaching portfolios in addition to the peer review system we have in place for in-person courses. Building on the experience from these innovations, we will need to develop ways of giving online students hands-on opportunities, such as research apprenticeships and honors breakout session projects. These opportunities will provide online students with the multiple points of contact with faculty that can serve as the basis for effective student recommendations.

In light of these massive changes, the SHESC faculty launched a major evaluation of the School's undergraduate curricula to: (1) revisit the learning goals we set for our undergraduate students, (2) take stock of our curricular offerings, and (3) identify potential gaps in our offerings. An additional aim of the effort was to outline an explicit set of learning goals in undergraduate degrees that would guide future decisions about course development and planning. The Anthropology and Global Health approaches in coordination with a dedicated

committee, identified a set of integrated learning objectives that spanned the Anthropology and Global Health programs. These also incorporated and adapted recently published competencies for Global Health majors based on a review of existing degree programs (Jogerst et al., 2015).

These integrated learning objectives reflect our common desire to help our students cultivate capacities to deal with a range of complex problems: how to identify the critical issues, ask the right questions, identify data sources, and create solutions that are meaningful and effective (Appendix D). In a next step, faculty mapped their courses to these learning objectives in terms of the degree to which they introduce, reinforce, and assess the key elements of these objectives. This mapping exercise, along with significant faculty discussion over a series of workshops, allowed the faculty to make specific undergraduate curricular recommendations for moving forward:

1. Develop additional coursework focused on evolutionary perspectives on health and human development/variation to serve both in-person and online students.
2. Expand study abroad offerings and enhance pre-departure training programs for students to ensure ethical engagement in diverse communities.
3. Develop a mandatory inclusivity and diversity awareness training program for all faculty and integrate best practices into existing coursework.
4. Develop more undergraduate research methods courses.
5. Bolster online courses in Anthropology subfields that are not yet well-represented in our online course offerings to support the online Anthropology BA (and any future effort to launch an online BS)

The integrated learning outcomes identified in our program evaluation also provide a rubric for assessing on a regular basis how our course offerings at different stages of the degrees are introducing, reinforcing and assessing the key knowledge and skills that we expect of students earning undergraduate degrees in Anthropology and Global Health.

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Section V

GRADUATE EDUCATION

5.1. Graduate Program Overview

Since the last program review in 2011, graduate programs and training have undergone considerable development and transformation. In 2012 and 2013, SHESC awarded its first graduate degrees in three nascent programs—an MA in Global Health and PhDs in Global Health and Environmental Social Science—as well as a reconfigured MA in Museum Studies. Since that time, these programs have grown to produce over 70 graduates. Around this time, SHESC also established a new graduate certificate programs in Immigration Studies. While expanding its graduate offerings, SHESC has continued to maintain existing strengths in Anthropology (83 new PhDs) and Applied Math in the Life and Social Sciences (31 new PhDs).

To manage growth in the size and complexity of our graduate programs, the School has devoted considerable effort to creating pathways for graduate success. This includes increasing stipends per student by limiting the size of incoming cohorts, creating clear trajectories to reduce time to degree, and providing pilot funding and dissertation writing fellowships to ensure smooth transitions. This is based on a philosophy of investing more resources in smaller cohorts to increase personal attention from advisors and ensure the success of each student. The positive outcomes from these developments can be seen in success in job placement (see below) as well as university-wide graduate teaching awards (Wutich, 2017 Outstanding Doctoral Mentor).

These changes have brought additional challenges of maintaining graduate cohort cohesion and ensuring quality graduate mentoring. We have taken a number of steps to foster graduate student community and integration, such as organizing speaker series (e.g., colloquia and brown bags), more intensive professionalization seminars, and increasing graduate student representation and voice at faculty meetings. The directorate has also begun conversations with graduate students to identify areas where we can improve their graduate experience and ensure they receive the training they need for successful careers.

5.2. Description of SHESC Graduate Degree Programs

In both the MA and PhD graduate programs, graduate training focuses on transdisciplinarity, a hallmark of ASU and SHESC in particular. SHESC currently administers two graduate degrees at the Masters level (MA in Museum Studies, MA in Global Health) and four graduate degrees at the PhD level (Anthropology, Applied Mathematics for the Life and Social Sciences, Environmental Social Sciences, and Global Health).

Since 2010, our unit revised and streamlined the graduate curricula, particularly within the Anthropology MA and PhD programs. Part of this integration involved consolidating PhD tracks in Anthropology (formerly Archaeology, Socio-Cultural Anthropology, and Physical Anthropology) into a single Anthropology PhD program without eliminating the approach-based disciplinary training. Graduate students in Anthropology are now supervised in different approaches or sub-disciplines (Archaeology, Bioarchaeology, Socio-Cultural Anthropology, and Evolutionary Anthropology). Each approach has a recommended curriculum within the

Anthropology PhD track and approach-specific criteria for annual evaluations, but students are integrated in courses on Professionalism and Proposal Writing in order to facilitate transdisciplinary training that cross-cut these approaches.

The current curricula all emphasize flexibility in allowing students to work with committees to create the best program of study, and encourage students to take advantage of the breadth of faculty in the School. Thus, the number of required courses is generally small. Graduate program curricula and courses of study are presented in in Appendix E. Beyond two core courses, each Anthropology approach has its own recommended curriculum for the Anthropology PhD.

This process of integration also resulted in the cessation of the terminal MA program in Anthropology and witnessed the successful development of an MA programs in Global Health and a reconfigured MA in Museum Studies. The graduate landscape in our unit, thus, retains the integration of intellectual and methodological diversity that makes SHESC unique while also offering significant opportunities for students to pursue different disciplinary and degree tracks.

The School maintains handbooks for each of the graduate degree programs which are available on SHESC's website and are stored on SHESC's blackboard site. It is updated roughly annually, and archived copies are kept on blackboard.

5.2.1. Requirements. Graduate students enter and advance through the program via different phases. Students entering at Phase I matriculate with only a bachelor's degree. Phase II students are either students who have entered with a Master's degree or who have received a Master's in passing in transition from Phase I to Phase II. Following successful examinations and proposal defenses, students move to PhD candidacy.

We currently have two active terminal MA programs, one in Global Health and one in Museum Studies. Both programs require 30 credits of study. Museum Studies requires an internship or practicum as well as a research portfolio including two publishable research essays. The MA program in Global Health includes 12 credits of core classes, an internship or practicum, as well as an applied project. Students in our terminal masters programs are not automatically admitted to the PhD programs. They must apply through the normal process and deadlines. If accepted, they would enter Phase II.

All doctoral students in Anthropology, Applied Mathematics, Environmental Social Science, and Global Health are required to complete 84 credit hours, a prospectus or proposal, comprehensive exams (or their equivalent), and a dissertation (and oral defense of the dissertation). Students also are required to complete seminars in professionalism and proposal writing. Across our programs, the distribution of the 84 required credits is the same. All students who enter a doctoral program without a master's degree (Phase I) must develop a research portfolio—often a publishable paper—and present their research at a SHESC-wide research symposium (held every April). Students who enter with a master's degree in a related field may be granted up to 30 credit hours toward this requirement. Subsequently, students

must take an additional 30 credit hours of courses. The remaining 24 credits are fulfilled through directed research and or dissertation writing credit hours.

There are a few additional program-specific requirements. Students entering the Anthropology PhD program have standardized requirements for the degree but also have specific course and training requirements and recommendations depending on their approach (i.e., Sociocultural Anthropology, Archaeology, Bioarchaeology, Evolutionary Anthropology, and Complex Adaptive System Science concentration). In the Environmental Social Sciences PhD program, students must complete a two-course sequence in the Environmental Social Sciences. In the Applied Mathematics for the Life and Social Sciences PhD program, students must complete 18 credits of core courses. In the Global Health PhD program, students are additionally required to take a core theory class and undertake an internship or practicum.

Our graduate degree certificate in Museum Studies requires a total of 18 credit hours. While this certification program can be taken in conjunction with another degree program at ASU, it can also be taken alone as a separate course of study for professionals in related fields who are otherwise not seeking a doctoral degree (i.e., those who work in museums or intend to do so). Students are required to take one three-credit core course on critical issues in Museum Studies followed by nine credits of elective coursework and six credits of an internship or practicum that contributes to a project and/or exhibit at an approved ASU museum of collection.

For the Immigration Studies graduate certificate, students can focus on Latino immigration or focus more broadly on global migration. The graduate degree certificate in Immigration Studies requires a total of 15 credit hours and may be taken alone or in conjunction with another ASU degree program. Students take one of four three-credit core courses plus an additional nine credits of elective coursework and a three-credit culminating experience such as an internship or research paper.

The standards for satisfactory academic progress are based on policies set by the university. All doctoral students must maintain a 3.20 (scale is 4.00 = A) average GPA in their courses and complete degree requirements per the program's satisfactory progress policy.

5.3. Program Analysis

Within the past seven years, SHESC has awarded a total of 53 MAs and 135 PhDs (Table 5.3a). These include 35 Museum Studies MAs and 18 Global Health MAs, in addition to 83 PhDs in Anthropology, 31 in AMLSS, 11 in ESS, and 10 in Global Health. It is difficult to compare these data with the previous self-study due to structural changes in degree programs. For example, a total of 69 Anthropology PhDs were awarded in the prior seven-year period, but the new doctoral programs in ESS, Global Health, and AMLSS did not start producing graduating students until 2014, 2013, and 2009, respectively. In any case, there has been a nearly twofold increase in PhDs produced by the program since the previous self-study (135 compared to 69).

The number of students enrolled in many of our graduate degree programs—PhDs in Environmental Social Science, Global Health, and AMLSS, MAs in Museum Studies—have remained relatively constant over the past 7 years (Table 5.3a). Certificate programs in Museum Studies and Immigration Studies have also seen productive, though variable, levels of enrollment.

Table 5.3a. Current Graduate Degree Programs Offered by Unit. Headcount of enrolled students in Fall and Degrees awarded

Graduate Programs		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	Degree Total
MAs									
Museum studies	Headcount	4	12	15	8	18	12	4	
	Degrees	2	3	12	2	5	11	-	35
Global Health	Headcount	2	5	6	5	3	3	1	
	Degrees	3	1	2	6	2	1	3	18
PhD									
Anthropology	Headcount	124	116	111	99	98	88	85	
	Degrees	8	13	14	10	12	17	9	83
AMLSS	Headcount	28	20	21	32	30	24	22	
	Degrees	6	3	4	2	7	3	6	31
ESS	Headcount	13	15	20	18	13	9	11	
	Degrees	0	0	3	5	2	1	-	11
Global Health	Headcount	7	9	11	9	8	8	10	
	Degrees	0	2	1	1	2	2	2	10

Anthropology, our largest PhD program, has seen substantial declines in the number of students (124 in 2011-2012 to 85 in 2017-2018). This reduction is an outcome of recent efforts to encourage timely graduation among those who have been in the program for over 8 years as well a shift to admitting fewer students in order to provide them larger TA/RA stipends and more individualized attention (see details below). Overall, the School's goal is to maintain roughly 2 PhD students per faculty member. We are accomplishing this by giving each degree

program and approach admission targets based on how many students are in each approach, how many are students are graduating, and how many of accepted students have historically enrolled.

Structural shifts also explain the decline in enrollments in our MA in Global Health. SHESC faculty in collaboration with the Center for Evolutionary Medicine have been preparing an MS in Global Health, which will have both in-person and online options and is ultimately aimed to replace the MA. Pending approval, it will launch in Fall 2020. For this reason, the faculty have been curtailing admissions to the MA program in preparation for the change. Finally, a long-running issue is that only one or two faculty have regularly supported courses in the MA in Museum Studies. To alleviate undue burden, the program began accepting students on a 2-year rotation. This has led to a reduction in students and a 2-year cycle of graduations. Starting in 2017-2018 the program has returned to accepting applications every year.

Table 5.3b. Students Concurrently Enrolled in Graduate Certificates in the Unit

Students Enrolled	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Museum Studies Certificate	4	7	8	14	11	8	4
Immigration Studies Certificate	-	-	-	1	-	-	2

Table 5.3c. Graduate Course FTEs

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Graduate Student FTE	106	121	120	116	112	117	90

5.3.1. Recruiting Graduate Students. SHESC faculty attempt to recruit top graduate students who bring diverse perspectives to the program. Committees of faculty from each approach evaluate prospective students using a range of assessments: focused research statement that addresses current faculty strengths, a writing sample, letters of recommendation, CV or resume, record of undergraduate performance (i.e., GPA), and GRE scores. We recognize that no single metric is the best indicator of student potential.

First and foremost, SHESC is committed to maintaining and fostering diversity in its student body. In both our masters and our doctoral programs, there are proportionately more women enrolled in SHESC's graduate programs than across CLAS on average. The proportion of minority students in SHESC's graduate programs also generally has been higher than CLAS-wide values (Tables 5.3.1a and 5.3.1b). Over the last seven years, indicators of student potential based on GRE scores have also remained relatively stable and on par with those for average graduate recruits in the College (Table 5.3.1a and 5.3.1b).

During the current study period, the number of applicants to SHESC graduate programs has declined substantially (Figure 5.3.1a), which has caused some concern among SHESC's faculty. However, considered from a longer term perspective, current application levels have returned to those that existed prior to 2008. It is difficult to determine exactly what led to the increase and subsequent decline starting in 2008, but it may be related to increasing applications to graduate school during the most recent economic recession.

Figure 5.3.1a. Historical Trend in Number of Applications to SHESC Graduate Programs

Table 5.3.1a. MA Student Profile.

Total Masters Profile		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	College 2017-18
Applicants		35	43	27	21	30	7	8	1,571
Admissions		19	18	17	12	22	3	4	901
New Students Enrolled		4	11	9	6	13	2	3	599
Selectivity		54.3%	41.9%	63.0%	57.1%	73.3%	42.9%	50.0%	57.4%
Yield		21.1%	61.1%	52.9%	50.0%	59.1%	66.7%	75.0%	66.5%
Average GRE	Verbal	-	153	155	156	154	160	156	153
	Quantitative	-	145	150	150	148	151	148	151
	Analytic	4.0	4.1	3.8	4.0	4.1	4.0	4.3	3.8
% women		83.3%	88.2%	85.7%	84.6%	66.7%	73.3%	80.0%	66.7%
% ethnicity	Amer. Indian	16.7%	0.0%	0.0%	7.7%	4.8%	0.0%	0.0%	1.8%
	Asian Amer.	0.0%	17.6%	9.5%	0.0%	0.0%	0.0%	0.0%	2.7%
	Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%
	African Amer.	0.0%	0.0%	0.0%	0.0%	0.0%	6.7%	20.0%	7.0%
	Hispanic	0.0%	11.8%	19.0%	7.7%	4.8%	0.0%	20.0%	16.6%
	2 or More Races	16.7%	5.9%	4.8%	0.0%	4.8%	6.7%	20.0%	2.8%
	White	66.7%	64.7%	66.7%	76.9%	81.0%	80.0%	40.0%	63.4%
	Unknown	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%
% Minority total		33.3%	35.3%	33.3%	15.4%	14.3%	13.3%	60.0%	30.9%
% International		0.0%	0.0%	0.0%	7.7%	4.8%	6.7%	0.0%	4.9%

Table 5.3.1b. PhD Student Profile

Total Doctoral Profile		2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	College 2017-18
Applicants		196	231	164	205	158	137	135	1,921
Admissions		57	64	57	53	37	38	49	575
New Students Enrolled		23	21	31	26	13	17	28	253
Selectivity		29.1%	27.7%	34.8%	25.9%	23.4%	27.7%	36.3%	29.9%
Yield		40.4%	32.8%	54.4%	49.1%	35.1%	44.7%	57.1%	44.0%
Ave. GRE	**Verbal**	-	158	163	156	162	157	156	155
	Quantitative	-	151	156	155	156	155	152	155
	Analytic	4.3	4.5	4.3	4.0	4.6	4.1	4.1	3.9
% women		63.4%	58.8%	60.1%	58.9%	60.4%	55.8%	55.5%	50.4%
% ethnicity	**Amer. Indian**	2.3%	1.9%	1.2%	1.3%	1.3%	0.8%	0.8%	1.4%
	Asian Amer.	1.7%	1.9%	1.8%	2.5%	4.0%	4.7%	3.1%	4.4%
	Pacific Islander	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
	African Amer.	4.1%	4.4%	3.7%	4.4%	5.4%	3.9%	4.7%	2.2%
	Hispanic	12.8%	11.3%	12.3%	12.0%	12.8%	10.9%	8.6%	10.7%
	2 or More Races	1.2%	0.6%	1.2%	1.9%	2.0%	3.1%	2.3%	2.5%
	White	62.8%	63.7%	63.8%	61.4%	61.1%	62.0%	66.4%	52.3%
	Unknown	2.3%	1.9%	1.8%	1.3%	1.3%	1.6%	2.3%	2.1%
% Minority total		22.1%	20.0%	20.2%	22.2%	25.5%	23.3%	19.5%	21.1%
% International		12.8%	14.4%	14.1%	15.2%	12.1%	13.2%	11.7%	24.6%

5.3.2. Student Support in Graduate Education. The current student support model involves a combination of teaching assistantships and research assistantships. Each approach in Anthropology (Bioarchaeology, Evolutionary, Archaeology, Sociocultural) and the transdisciplinary Global Health and Environmental Social Science programs offers one guaranteed funding package to recruit the most competitive students (a total of six packages are offered). From 2011 to 2016, these packages consisted of guaranteed teaching assistantship positions for a three-year period. However, we recognized that this funding model put us at a competitive disadvantage compared to other universities who are able to offer guaranteed funding for longer periods of time. Consequently, we increased the recruitment package to five guaranteed years of funding beginning with the 2017-2018 academic year. Remaining students in need are placed in a competitive pool for teaching assistantships. During the current self-study period, we have been able to offer 40 to 50 teaching assistantships annually, the vast majority of which have been awarded to doctoral students (see Table 5.3.2a). The AMLSS PhD program is funded through a different source.

Graduate students also receive support from research assistantships. Funding for research assistantships derive from different sources, including faculty grants and the operating budgets of centers and other academic units. We have awarded an average of 33 research assistantships annually during the current self-study period (between 26 and 40).

In addition to SHESC support, graduate students regularly acquire support for their doctoral studies and for dissertation research from external sources. For example, since 2015, three of our graduate students have been awarded NSF Graduate Research Fellowships to fund their doctoral work. A considerable number of students also regularly receive grant support for their dissertation research. Twenty-one graduate students have received NSF DDRI grants since 2014; two received Wenner-Gren grants; six received Fulbright grants; two received Leakey Foundation grants; and eight have received support from a range of private foundations (e.g., Rust Family Foundation, Evolving Earth Foundation, Nacey Maggioncalda Foundation). Student success in this area is in part due to the support provided through offering faculty-led courses on proposal writing every semester, strong faculty mentorship, and individualized technical support by our research advancement staff.

Based on concerns about providing competitive packages, SHESC also made a substantial change to funding for graduate students, increasing individual academic year stipends per student ($13,700 to $18,000 annually) by limiting the size of incoming cohorts. This increase was based on a philosophy of investing more resources in smaller cohorts to ensure the success of each student.

Table 5.3.2a. Distribution of teaching and research assistantships for graduate students (FTE equivalent)

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Teaching Assistantships	23.2	23.5	24.8	22.5	20.5	21.3	21
Research Assistantships	11.1	12.2	10.3	8.3	7.5	8	9.3
% RAships	32%	34%	29%	27%	27%	27%	31%

5.3.3. Encouraging Student Success. In addition to financially supporting graduate student education and mentoring, we have spent considerable effort developing strategies to encourage successful and timely graduate completion and to help students achieve their academic goals. Many of these were developed in 2010-2011, when the Directorate and Graduate Director worked with graduate student degree representatives to brainstorm novel approaches. Here, we describe some of the most important changes to the program.

To welcome new doctoral students, we host an orientation day where we introduce students to SHESC's programs and facilities and answer questions they have about SHESC and the University.

To ensure that graduate students are advancing toward degree, SHESC now maintains a formal, annual evaluation process to assess students' satisfactory progress. Given differences in specialization and expectations among the unit's sub-disciplines, the faculty in each approach and degree assesses its own graduate students. Nevertheless, fundamental overlap exists in the objective criteria. Students are assessed based on performance expectations and benchmarks according to year or semester in the program. These criteria fall within categories: Academic Performance (i.e., GPA), Progress toward degree; and Professional Development (Appendix F). The relevance and weighting of these categories are adjusted as students' move through the program's phases. This procedure helps to eliminate any ambiguity regarding expectations of advancement and performance and also alerts faculty to issues in a timely manner.

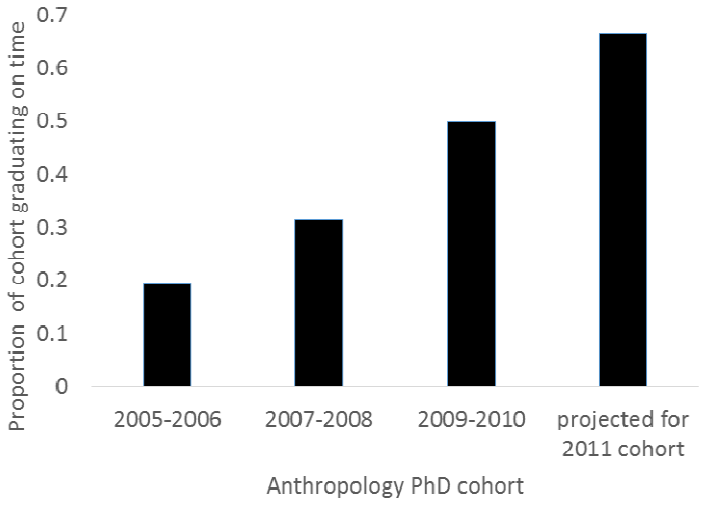
All approaches and degrees have also revised their curricular requirements and their "road maps" to degree in order to reduce the time to degree completion. For some approaches, this work has allowed a revision of more traditional graduate training benchmarks, such as comprehensive examinations, to be specifically geared and designed toward achieving concrete, academic products that are critical for success, such as National Science Foundation Dissertation Improvement Grants.

At the beginning of the program revisions in 2010-2011, a SHESC Associate Director scheduled monthly check-in meetings with doctoral students who were in their eighth year or more of graduate study. These monthly checks with each student and their committee were designed to help students keep on track for a timely graduation. Although this has not been

necessary in recent years, the School plans to restart this process as a way to maintain contact with students in late stages of the program.

To alleviate barriers to starting research, SHESC also established pilot study funding for SHESC graduate students, whereby students can now apply for a $3,000 Research Grant in addition to SHESC Travel Awards). In addition, SHESC established Completion Fellowships that complement the College-funded Summer Writing Fellowships and Dissertation Writing Fellowships in providing students the time necessary to finish their degree. Finally, the Graduate Director has aimed at greater transparency by making a public, unified list of internal funding deadlines and working with each approach to update and clarify recommended and required courses of study.

Figure 5.3.3. Proportion of Anthropology PhD cohorts who graduate with PhD on time (among those who did not leave program without PhD). On time = 6 years for phase II entrants and 8 years for phase I entrants. 2011 Forecast based on 75% of students on dissertation writing fellowships graduating by May 2019.



It is difficult to assess the effects of these changes using coarse-grained measures of time to completion among those graduating in a specific year, as students who had been in the program for many years (in one case 20 years) are now finishing the program and artificially bringing up the median time to degree. However, other indicators suggest the policies are working. First, time to completion in degrees that began only recently give encouraging results (median time to completion: Global Health 5.4 y, Environmental Social Science 4.9 y, AMLSS 5.3 y). Second, a more fine-grained analysis of Anthropology PhDs following cohorts in specific starting years also indicates improvement. Specifically, among students starting in 2005-2006 who remained in the program, fewer than 20% graduated on time (i.e. 6 years for Phase II entrants; 8 years for Phase I entrants). Only five years later, the cohort that started when the policies were implemented (2011) is expected to have 67% of students graduating on time

(Figure 5.3.3). The directorate will continue to monitor these trends to ensure that these improvements are sustained.

5.3.5. Professional Training. In response to concerns raised in the previous program review, the School has taken a number of steps to improve graduate training in field-relevant skills and research methods.

Research skills. We now offer more courses that employ a range of quantitative and geo-spatial applications, including those that offer basic training in computer programming. The SHESC faculty have also been active in offering methods workshops supported by the Institute for Social Science Research that are available to graduate students.

Teaching. SHESC does not rely on graduate students to teach its courses, relying instead on tenured and tenure-track faculty, and instructors on long-term contracts. For graduate students and postdoctoral researchers who desire teaching experience, SHESC offers a supervised teaching apprenticeship experience. For some students, the credit earned is "elective" in nature, while for students in the Global Health PhD program, the apprenticeship hours may count toward required practicum hours. Any faculty member can sponsor an apprentice, and so the specific approach is tailored to the needs of the student. A common approach is for the apprentice to design a two-week (e.g. four session) module for the course. The topical module includes readings, exercises, lectures, facilitated discussion, and examination questions, which are integrated into the course as a whole. The sponsoring professor supervises this process, observes the apprentice, administers and tabulates a course evaluation for the apprentice, and is available throughout the process to give guidance and feedback. Professional goals of the apprenticeship include: to develop a draft teaching statement; to build the evidence base for effective teaching; and to foster a faculty member who is able to comment on teaching aptitude.

SHESC has also initiated a graduate-level training program in university education. This begins with a seminar that prepares doctoral candidates to teach an introductory undergraduate class, which they then teach the following semester. We anticipate this program will not only provide important experiences for our graduates, it will also increase their competitiveness on the job market.

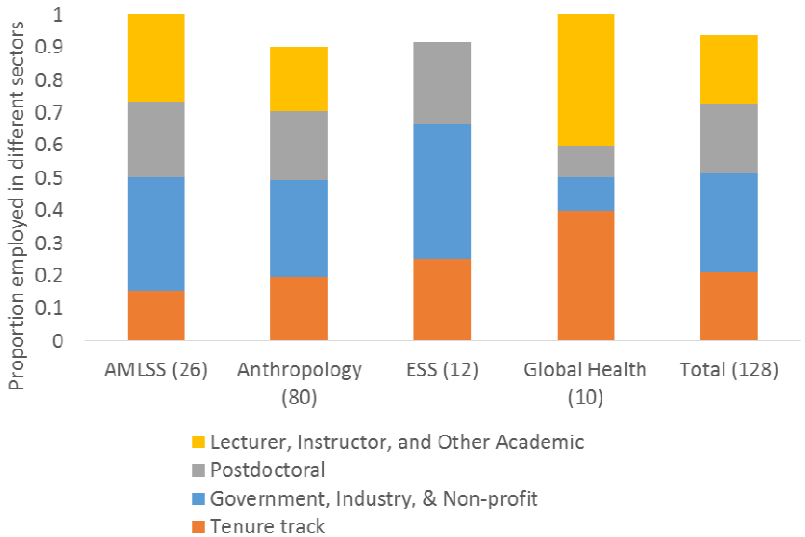
Professional skills. To meet graduate student demand for professional skills, SHESC will be launching an additional course on advanced professionalism that would assist students in preparing for the job market. SHESC's graduate student association (AAGS) has also begun organizing events based on professional development, mental health, and inclusivity that go beyond traditional social gatherings. As an example, they have organized a Summer Research Symposium for the last 3 years, where students gain experience presenting their research. This symposium complements the established the Spring Research Symposium where Master's students present their masters research to other students, faculty, and staff. Finally, SHESC has also instituted required teaching and research assistantship training days at the start of each semester which focus on professional development.

Ethical standards. Based on suggestions identified in monthly meetings between the Graduate Director and graduate student representatives, we have sought to remedy concerns about training ethical standards through a range of workshops on both research ethics and professional conduct as well as increased focus on ethics in professionalization and proposal writing seminars.

The faculty also acknowledge the need to continue improving graduate education, and the Graduate Director maintains regular conversations with graduate students through monthly meetings and occasional town halls to identify emerging graduate student concerns.

5.3.4. Evidence of Effectiveness in Graduate Education: Placement and Exit Surveys. A number of metrics exist to assess how well we are serving our doctoral students. Placement of graduates is a standard marker of success. Based on standardized alumni surveys for former graduate students, 73.8% were employed full time and only 3.3% were not employed and looking for work three years after graduation (n=61). Of those who were employed (n=51), 94.0% reported that their current employment was either closely or somewhat related to their field of study at ASU. Table 5.6 (end of chapter) outlines more specific as well as more comprehensive placement data on our recent PhD graduates from a regularly updated list compiled by our advising staff based on information from faculty and internet searches. Across all our approaches, within Anthropology as well as all our doctoral programs in Global Health, Environmental Social Sciences, and AMLSS, we are doing very well. Of the 128 PhD graduates from 2012, 21% are postdoctoral researchers, 21% are in tenure-track positions, 9% are instructors and lecturers, and 13% are in other academic positions. Notably, 30% have found employment in the non-academic public and private sector (Figure 5.3.4a)

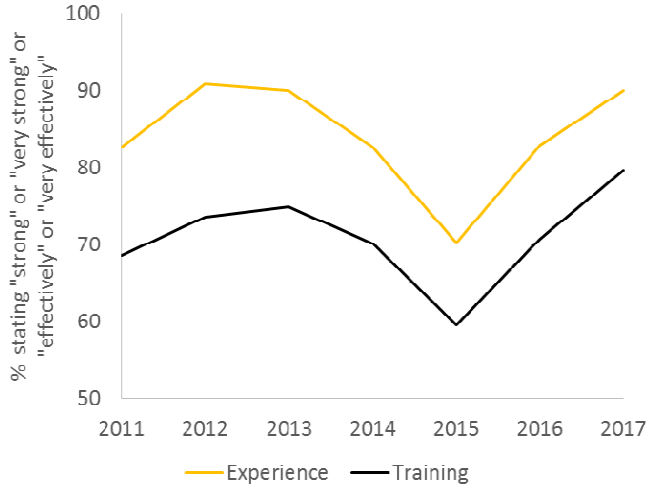
Figure 5.3.4a. Current employment for PhD graduates by program and employment sector (Fall 2012 to Spring 2018)



Comparing our graduate student placements with other programs across the country is difficult given the minimal availability of comparative data and the unique transdisciplinary structure of SHESC. However, a recent study found that ASU ranks fourth in the country for academic job placement in archaeology and bioarchaeology (Speakman et al. 2018). Despite the paucity of comparative data, SHESC PhDs have gone on to faculty positions at a range of research-focused and teaching-focused universities and colleges, success that demonstrates the robust level of preparedness ASU graduate students receive. For example, 27 SHESC PhDs have received tenure-track faculty positions during the current study period, and 28 have taken other academic positions, including as adjunct instructors, lecturers, professors of practice, as well as research and clinical professors. Twenty-seven of the doctoral students who graduated during this period received postdoctoral fellowships. Our graduates are also successfully sharing their research with 88% publishing at least one and 54% publishing at least three peer reviewed publications and 76% presenting at local, regional, or national conferences in the three years since graduation.

Finally, a promising trend within this period is the fact that not all our students seek out employment in academia. Almost 40 of our PhDs have obtained successful and competitive employment in the non-academic public or private sectors (Table 5.6). This employment spectrum includes public and private research positions, policy advisers, and administrators. These diverse employment trajectories reflect the broad, transdisciplinary training that SHESC graduate students receive.

Figure 5.3.4b. Trends in Average Graduate Alumni Satisfaction for Training (7 items) and Experiences (5 items).



Another means to assess program success is through graduate alumni evaluations of the programs as a whole. Table 5.3.4a and Table 5.3.4b presents exit survey data focusing on graduate student satisfaction with their training and education. For both professional skills (7 items: quantitative, computer, writing, speaking, ethical standards, methods, and preparation

for future study) and experiences (5 items: overall experience, instruction, course availability, career advising, and faculty concern), there is a substantial decline until 2015 and then a comparable rebound (Figure 5.3.4b). We can only speculate as to the cause of this pattern. It may be related to the School's concerted efforts to encourage students to graduate in a timely manner (starting in 2010-2012) and a subsequent surge of graduations of long-standing students who had been ill-served by their extended time in the program.

Figures 5.3.4c and 5.3.4d show how the School's most recent scores (2017-2018) compare to the mean responses from the previous self-study (2004-2011) and with the College today (2016-2017). SHESC has made substantial improvements in training students in most areas, and we compare favorably to the College in these same areas. The figures also indicate three areas of concern—the availability of required courses as well as training in scholarly writing and speaking. To address concerns with the availability of required courses, the directorate has instituted a policy that limits volatility in graduate course offerings from one semester to the next and that ensure required courses will be offered on a regular basis. More broadly, the Graduate Director has opened up discussions with graduate students through monthly meetings and town halls to identify potential pathways for improving training in scholarly communication.

Table 5.3.4a. Graduate Alumni Satisfaction Survey on Training (2011-2018). Percent of graduating graduate students who responded 'effectively' or 'very effectively' or responded 'strong' or 'very strong' when asked about their training in the following areas. Data from UOEEE career review.

Aspect	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	College 2016-2017
Preparation for further study in field	95%	90%	100%	89%	78%	92%	100%	95%
Research skills and methods	76%	70%	81%	78%	69%	76%	92%	80%
Public speaking skills	76%	80%	67%	60%	58%	57%	58%	59%
Knowledge of computer applications	47%	59%	48%	55%	44%	50%	63%	60%
Writing skills	76%	77%	79%	80%	67%	74%	64%	80%
Ethical standards in the field	52%	70%	78%	70%	50%	74%	92%	79%
Quantitative skills	58%	69%	71%	59%	51%	72%	88%	73%

Figure 5.3.4c. Graduate Alumni Satisfaction Survey on Training: SHESC 2017-2018 compared to SHESC 2004-2010 and CLAS 2016-2017. Percent of graduating graduate students who responded 'effectively' or 'very effectively' or responded 'strong' or 'very strong' when asked about their training in the following areas.

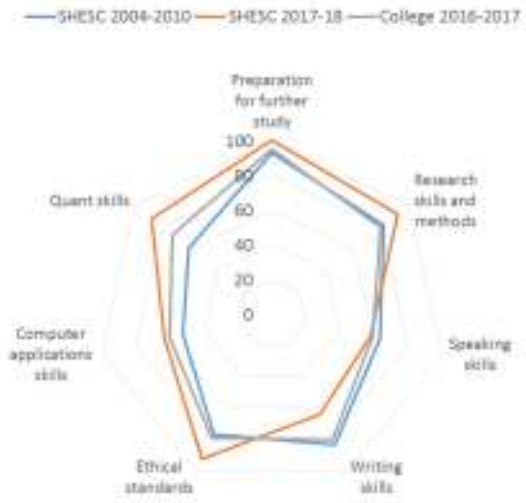
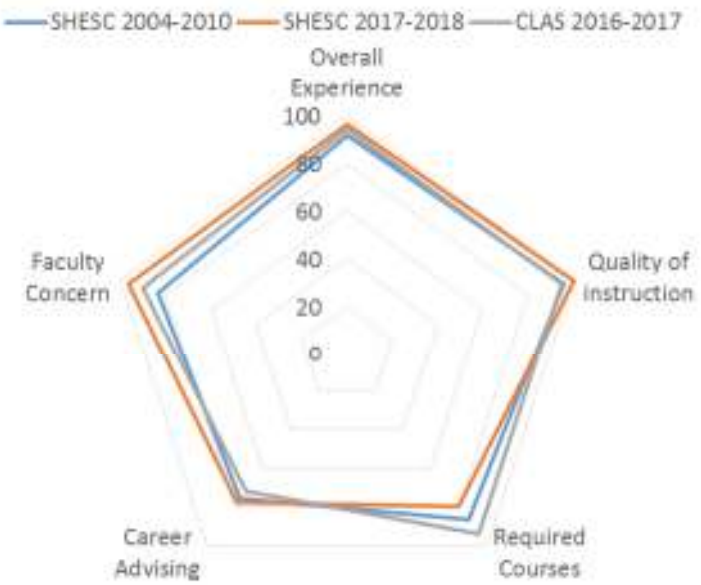


Table 5.3.4b. Graduate Alumni Satisfaction Survey on Experiences 2011-2018. Percent of graduating graduate students who responded 'effectively' or 'very effectively' or responded 'strong' or 'very strong' when asked about the following aspects of the unit. Data from UOEEE career review.

Aspect	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	College 2016-2017
Overall academic experiences	86%	90%	93%	85%	76%	79%	96%	94%
Quality of instruction	95%	97%	98%	90%	90%	92%	100%	95%
Availability of required courses	90%	100%	93%	72%	63%	82%	80%	94%
Advising on career options within field	67%	77%	76%	71%	53%	74%	78%	72%
Concern of faculty for students	75%	90%	90%	95%	69%	87%	96%	90%

Figure 5.3.4d. Graduate Alumni Satisfaction Survey on Experiences: SHESC 2017-2018 compared to SHESC 2004-2010 and CLAS 2016-2017. Percent of graduating graduate students who responded 'effectively' or 'very effectively' or responded 'strong' or 'very strong' when asked about their training in the following areas.



5.4. Strategic Directions in Graduate Education

In 2010-2011, our school implemented a comprehensive plan to support PhD students in their timely progression to degree. By current metrics these policies appear to be achieving their goal (Figure 5.3.3). Our long-term goal is for sustained 75% completion by the 6th year for those entering with a Masters (8th year for those entering without an MA). This time-to-degree will surpass the long-standing median of 8 years in the behavioral and social sciences (NSF 2017) and most recent (but out-dated) time to completion estimates for anthropology degrees nationally (median = 11.9 years, Hoffer and Welch 2006).

A crucial next step in developing our graduate programs will be to address remaining graduate student concerns identified in alumni surveys and meetings with current graduate students. These include:

1. improving availability of required courses and clarifying course maps
2. providing additional training in the scholarly dissemination of research through both writing and speaking
3. advising and mentoring students on alternative careers for PhDs, with support of our many alumni working in government, non-profits, and industry.
4. offering a greater quantity and diversity of career-relevant methods training

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Table 5.6. Disposition of SHESC Doctoral Students 2012-2017 (n = 128)

Detailed employment culled by SHESC staff and faculty through personal contacts and web profiles (Linkedin). College-level classifications provided by College. TT = Tenure track, PD = Postdoctoral, OA = Other academic, LI = Lecturer/Instructor, NP = Govt/Non-profit, IE = Industry Employee, ND = No data,

Alumnus Name	Degree Date	Advisor(s)	Area	Current Employment (as of September 2018)
Hodgkins, Jamie	2012 Fall	Reed/Marean	Anth (Phys)	Assistant Professor of Anthropology, University of Colorado at Denver (TT)
London, Douglas	2012 Fall	Tsuda	Anth	Faculty, Central Washington University (OA)
Rolland, Michael (Miguel)	2012 Fall	Chance	Anth	Dominican friar, Mexicali, Baja California, Mexico (NP)
Perez Pereiro, Alberto	2012 Fall	Eder/Jo	Anth (SC)	General Manager, Breogán Consulting (IE)
Kareva, Irina	2012 Spring	Castillo-Chavez	AMLSS	Senior Scientist, EMD Serono, Inc (IE)
Morin, Benjamin	2012 Spring	Castillo-Chavez/Hiebeler	AMLSS	Assistant Professor of Mathematics and Statistics, Vassar College (TT)
O'Mara, Michael (Teague)	2012 Spring	Nash	Anth	Marie Curie Postdoctoral Research Fellow at the University of Konstanz, Max Planck Institute for Ornithology, and Smithsonian Tropical Research Institute (PD)
Roder, Dolma	2012 Spring	Eder	Anth	Lecturer, Sociology Department, Royal Thimphu College (LI)
Lopez, Raquel	2012 Spring	Suslov	AMLSS	Instructor of Mathematics, Grand Canyon University (LI)
Meredith, Stephanie	2012 Spring	Nash	Anth	Adjunct Assistant Professor of Research in the Department of Biological Sciences, University of Southern California (OA)
Williams, Deborah	2012 Spring	Brandt	Anth	Clinical Assistant Professor in the College of Health Solutions, ASU (TT)
Copes, Lynn	2012 Spring	Kimbel	Anth	Assistant Professor of Medical Sciences, Quinnipiac University (TT)

Tello-Bravo, David	2012 Spring	Crook/Greenwood	AMLSS	Senior Analyst, Raza Development Fund (IE)
Torres-Garcia, Griselle	2012 Spring	Castilo-Chavez/ Zheng	AMLSS	Instructor, Grand Canyon University and Phoenix College (LI)
Watkins, Ramsi	2012 Spring	Bolin	Anth	Intervention Specialist, Launch Program (Title-III), San Juan College, Farmington, NM (OA)
Gartin, Meredith	2012 Summer	Brewis	GH	Visiting Assistant Professor, Ohio University (OA)
Bernatchez, Jocelyn	2012 Summer	Marean	Anth	Project Director, Ecoplan Associates, Inc. (IE)
Murillo, David	2012 Summer	Castillo-Chavez/Anderies	AMLSS	Risk Manager, American Express (IE)
Lucas, Lynn	2012 Summer	Spencer	Anth	Project Coordinator, Jaguar Hospitality Services (IE)
Nalley, Thierra	2013 Fall	Kimbel	Anth	Assistant Professor of Medical Anatomical Sciences, Western University of Health Sciences, Pomona, CA (TT)
Roberts, Christopher	2013 Fall	Hegmon	Anth	Assistant Professor, Director, Regis University (TT)
Farnbach Pearson, Amy	2013 Fall	Buikstra	Anth	Administrative Officer, University New Mexico (NP)
Declet-Barretto, Juan	2013 Fall	Bolin/Harlan	ESS	Kendall Science Fellow for the Climate and Energy, Union of Concerned Scientists (NP)
Ali, Muna	2013 Fall	Eder	Anth	Physical Therapist, Mayo Clinic (IE)
Ullah, Isaac	2013 Spring	Barton	Anth	Assistant Professor, San Diego State (TT)
Watts, Joshua	2013 Spring	Abbott	Anth	Postdoctoral Research Associate, SHESC, ASU (PD)
Vega-Guzman, Jose	2013 Spring	Castillo-Chavez/Suslov	AMLSS	Assistant Professor of Mathematics, Lamar University (TT)
Rodriguez-Soto, Isa	2013 Spring	Maupin	GH	Assistant Professor, Department of Anthropology and Classical Studies, University of Akron (TT)

Salau, Kehinde	2013 Spring	Fenichel/Janssen	AMLSS	Data Science Senior Associate, JP Morgan Chase & Co. (IE)
Russak, Samantha	2013 Spring	Reed	Anth	Director of Education, Earth Ltd. (IE)
Schmich, Steven	2013 Spring	Barton/Clark	Anth	Adjunct Faculty, Mesa Community College (OA)
Kruse-Peeples, Melissa	2013 Spring	Spielmann	Anth	Garden programs coordinator, Native Health (IE)
Lack, Andrew	2013 Spring	Abbott	Anth	Ceramic Analyst, Gila River Indian Community's Cultural Resource Management Program (NP)
Kelly, Sophia	2013 Spring	Abbott	Anth	Cultural Resources Program Manager, National Park Service (NP)
Luli, Dori	2013 Summer	Crook	AMLSS	Project Manager, Discover Financial Services (IE)
Strawhacker, Colleen	2013 Summer	Spielmann	Anth	Program Director, Arctic Social Sciences at NSF (NP)
Diddams, Margaret	2014 Fall	Bolin	ESS	Mass Incarceration Organizer/Lobbyist, Washington CAN (NP)
Fertelmes, Craig	2014 Fall	Abbott/Simon	Anth	Project Manager, Gila River Indian Community's Cultural Resource Management Program (NP)
Vansteelandt, Amanda	2014 Fall	Stone/Hurtado	GH	Public Health Officer, Public Health Agency of Canada (NP)
Cruz-Aponte, Maytee	2014 Spring	Castillo-Chavez/Wirkus	AMLSS	Associated Professor of Mathematics-Physics, University of Puerto Rico (TT)
Sadler, Brooke	2014 Spring	Hurtado/Goate	Anth	Postdoctoral Scholar, School of Medicine, Washington University in St. Louis (PD)
Barnett, Allain	2014 Spring	Anderies	ESS	Postdoctoral Scholar, Florida International University (PD)
Kyne, Dean	2014 Spring	Bolin	ESS	Assistant Professor of Environmental Sociology, University of Texas Rio Grande Valley (TT)

Freeman, Jacob	2014 Spring	Nelson/Anderies	Anth	Assistant Professor, Utah State University (TT)
Kessler, Sharon	2014 Spring	Nash/Reed	Anth	Postdoctoral Fellow, McGill University (PD)
Stroik, Laura	2014 Spring	Schwartz	Anth	Assistant Professor, Biomedical Sciences, Grand Valley State University (TT)
Patterson Lomba, Oscar	2014 Spring	Castillo-Chavez/Towers	AMLSS	Associate, Health Economics and Outcomes Research, Analysis Group, Inc (IE)
Ruth, Alissa	2014 Spring	Tsuda	Anth	Director of Strategic Initiatives, SHESC, ASU (OA)
Nichols, Catherine	2014 Spring	Toon	Anth	Lecturer in Cultural Anthropology and Museum Studies at Loyola University Chicago (LI)
Merrill, Michael	2014 Spring	Hegmon/Anderies	Anth	Archaeologist, U.S. Forest Service (NP)
Smith, Claire	2014 Spring	Tsuda	Anth	Project Manager, Four Winds Interactive (IE)
Morales, Emmanuel	2014 Spring	Castillo-Chavez/Aparacio	AMLSS	Assistant Professor, University of Puerto Rico (TT)
Schrein, Caitlin	2014 Spring	Johanson/Toon	Anth	Science Writer at National Science Foundation (SE)
Fawcett, Lubayna	2014 Spring	Maupin	GH	Assistant Professor in Physical Therapy, Mayo Clinic (TT)
Nitzky, William	2014 Summer	Jonsson/Isaac	Anth	Faculty in Sociocultural Anthropology and Museum Studies, California State University Chico (OA)
Thompson, Mason Scott	2014 Summer	Buikstra	Anth	Data Scientist, USAID (NP)
Harkins, Kelly	2014 Summer	Buikstra/Stone	Anth	Postdoctoral Scholar in Paleogenomics, University of California, Santa Cruz (PD)
Gomez Lievano, Andres	2014 Summer	Lobo/ Muneepeerakul	AMLSS	Postdoctoral Fellow, Center for International Development, Harvard University (PD)

Ritzman, Terrence	2014 Summer	Schwartz	Anth	Assistant Professor, Department of Neuroscience, Washington University School of Medicine (TT)
Hall, Sarah	2015 Fall	Jehn	GH	Assistant Professor, Public and Community Health Department, Utah Valley University (TT)
Novic, Juliana	2015 Fall	Smith	Anth	Student, Case Western University (OA)
Gonzales, Beverly	2015 Fall	Mubayi/Castillo-Chavez	AMLSS	Biostatistician, U.S. Department of Veterans Affairs (NP)
Evangelista, Arlene	2015 Fall	Castillo-Chavez	AMLSS	Instructor, ASU Downtown (LI)
Carver, Charisse	2015 Fall	Stojanowski	Anth	Business Analytics MS student, WP Carey School of Business, ASU (OA)
Williams, Hope	2015 Fall	Marean/Knudson	Anth	No data
Popescu, Gabriel	2015 Fall	Barton	Anth	Visiting Researcher, ASU (OA)
Brown, Starletta	2015 Fall	Hurtado	Anth	Environmental Health Specialist Supervisor, Maricopa County Environmental Services (NP)
Bliss, Nadya	2015 Spring	Castillo-Chavez/Laubichler	AMLSS	Director, Global Security Initiative; Professor of Practice, School of Computing, Informatics, and Decision Systems Engineering; Senior Sustainability Scientist, Julie Ann Wrigley Global Institute of Sustainability, ASU (OA)
Fernandez Alvarez, Rafael	2015 Spring	Bolin	ESS	Postdoctoral Researcher, Ecology Institute, Universidad de Mexico (PD)
Hatch, Mallorie	2015 Spring	Buikstra	Anth	Director of Research and Analytics, Healthgrades (IE)
Marsteller, Sara	2015 Spring	Knudson	Anth	Lecturer, SHESC, ASU (LI)
Miller, Katherine	2015 Spring	Buikstra	Anth	Assistant Professor of Anthropology, Indiana University East (TT)

Novotny, Anna	2015 Spring	Buikstra	Anth	Assistant Professor, Texas Tech University (TT)
Shapiro, Amy	2015 Spring	Reed	Anth	Data Scientist, Yelp (IE)
Anagnostou, Sotiria	2015 Spring	Chhetri	ESS	Sustainability Analyst, Whirlpool (IE)
Bleasdale, Thomas	2015 Spring	Harlon	ESS	Urban Agriculture Researcher (SE)
De La Torre Pacheco, Sindy	2015 Spring	Janssen	ESS	Professor, Universidad Autonoma de Coahuila (TT)
Kantor, Loni	2015 Spring	Nelson	Anth (Arch)	Professor, Orthodox Pastoral School (OA)
O'Hara, Frederick	2015 Spring	Hegmon	Anth	Consulting Archaeologist, Cornerstone Environmental & Ecoplan Associates (SE)
Johnson, Kent	2016 Fall	Buikstra/Stojanowski	Anth	Assistant Professor of Anthropology, SUNY-Cortland (TT)
Bergin, Sean	2016 Fall	Barton	Anth	Postdoc Research Associate, ASU SFI CTR BIOSOC (PD)
Udiani, Oyita	2016 Fall	Kang	AMLSS	Visiting Research Scientist, National Institute for Mathematical and Biological Synthesis (NIMBioS) (OA)
Watkins, Christopher	2016 Fall	Abbott	Anth	Senior Archaeologist, Logan Simpson Contract Archaeologist at APS (IE)
Crist, Walter	2016 Fall	Jonsson/Serwint	Anth	Research Associate, Museum of Natural History (NP)
Kim, Tae-Eun	2016 Fall	Eder	Anth	Project Staff, Migrant Health Association in Korea (NP)
Morales, Romarie	2016 Spring	Castillo-Chavez/Mubayi	AMLSS	Research Scientist I, Pacific Northwest National Laboratory (IE)
Schoville, Benjamin	2016 Spring	Marean	Anth	Lecturer in Archaeology, University of Queensland (LI)
Summer, Ilyssa	2016 Spring	Castillo-Chavez	AMLSS	Postdoctoral Fellow, University of Colorado (PD)

Murillo, Anarina	2016 Spring	Castillo-Chavez	AMLSS	Postdoctoral Scholar, University of Alabama Birmingham (PD)
Barley, Kamal	2016 Spring	Castillo-Chavez/Mubayi	AMLSS	Postdoctoral Fellow, Department of Mathematical Sciences, University of Cincinnati (PD)
Abdelmonen, Angie	2016 Spring	Eder	Anth	Postdoctoral Fellow, School for the Future of Innovation in Society, ASU (PD)
Catlett, Kierstin	2016 Spring	Schwartz	Anth	Senior Research Analyst, UnitedHealth Group (IE)
Torres Salinas, Robinson	2016 Spring	Bolin	ESS	Assistant Professor of Sociology, Universidad de Concepcion, Chile (TT)
Smith, Adrian	2016 Spring	Castillo-Chavez	AMLSS	Adjunct Professor of Mathematics, Mesa Community College (OA)
Huster, Angela	2016 Spring	Smith	Anth	Postdoctoral Research Associate, SHESC, ASU (PD)
Gentile, Lauren	2016 Spring	Bolin	ESS	Social Scientist at NOAA Fisheries Service (NP)
Steiness, Heather	2016 Spring	Hruschka	GH	Visiting Researcher, ASU (OA)
Sullivan, Abigail	2016 Summer	York	ESS	Research Fellow, Environmental Resilience Institute, Indiana University (PD)
Stotts, Rhian	2016 Summer	Wutich	Anth	Lecturer, SHESC, ASU (LI)
Russell, Will	2016 Summer	M. Nelson	Anth	Cultural Resources Manager/State Parks Archaeologist, Tribal Liaison, Site Steward Program Coordinator for Arizona State Parks & Trails (NP)
Culley, Elisabeth	2016 Summer	Clark/Barton	Anth	Director/Founding Editor, The Wayward Academic (SE)
Chowell-Puente, Diego	2016 Summer	Castillo-Chavez, Carlos	AMLSS	Research Fellow, Memorial Sloan Kettering Cancer Center (PD)
Nathan Wilson	2016 Summer	Smith/Stark	Anth	Visiting Assistant Professor, Universidad Veracruzana in Mexico (OA)

Alonzi, Elise	2017 Spring	Knudson	Anth	Postdoc, University College, Dublin (PD)
Oestmo, Simen	2017 Spring	Marean	Anth	Associate Statistical Researcher, Denver Police Department (NP)
du Bray, Margaret	2017 Spring	Wutich	Anth	Visiting Assistant Professor, Augustana College (OA)
Housman, Genevieve	2017 Spring	Stone	Anth	Postdoctoral Scholar, Genetics Medicine, Department of Medicine, University of Chicago (PD)
Gravel-Miguel, Claudine	2017 Spring	Barton	Anth	Postdoctoral Research Associate, SHESC, ASU (PD)
Mamada, Robert	2017 Spring	Castillo-Chavez/Perrings	AMLSS	Instructor of Mathematics, Grand Canyon University (LI)
Masood, Ayesha	2017 Spring	Tsuda	Anth	Assistant Professor, Lahore University of Management Sciences (TT)
Nado, Kristin	2017 Spring	Buikstra	Anth	Associate, Forensic Advisory Services, Granton Thornton LLP (IE)
Nieves Colon, Maria	2017 Spring	Stone	Anth	NSF Postdoctoral Fellow jointly affiliated with the Laboratorio Nacional de Genómica para la Biodiversidad, Unidad de Genomica Avanzada (LANGEBIO-CINVESTAV) in Guanajuato, Mexico and SHESC, ASU (PD)
Bolhofner, Katelyn	2017 Spring	Buikstra	Anth	Assistant Professor of Anthropology, Texas Tech University (TT)
Voytyuk, Mariya	2017 Spring	Hruschka	GH	Research Associate, Thomas and Dorothy Leavey Center for the Study of Los Angeles, Loyola Marymount (OA)
Hagaman, Ashley	2017 Summer	Wutich	GH	Postdoctoral Scholar, Carolina Population Center (PD)
Glowacka, Halszka	2017 Summer	Schwartz	Anth	Assistant Professor. University of Arizona College of Medicine – Phoenix (TT)
Edmonds, Hallie	2017 Summer	Reed	Anth	Postdoctoral Research Associate, Center for Evolution and Medicine, Arizona State University (PD)

Messan, Komi	2017 Summer	Kang/Castillo-Chavez	AMLSS	Research Mathematician, U.S. Army Engineer Research and Development Center (NP)
McCool, Sarah	2017 Summer	Gaughan	GH	Clinical Assistant Professor, Georgia State University School of Public Health (TT)
Nafe, Christopher	2017 Summer	Wetmore	ESS	Sustainability Coordinator, City of Harrisburg (NP)
Paul, Kathleen	2017 Summer	Stojanowski	Anth	Lecturer, SHESC, ASU (LI)
Swantek, Laura	2017 Summer	Barton	Anth	Manuscript Editor (SE)
Villegas-Gold, Michelle	2017 Summer	Hurtado	GH	University Innovation Fellow, ASU (OA)
Beresford, Melissa	2018 Fall	Wutich	Anth	Postdoctoral Fellow, ASU (PD)
Espinoza, Baltazar	2018 Spring	Kang/Castillo-Chavez	AMLSS	Postdoctoral Researcher, ASU (PD)
Gwiszcz, Julie	2018 Spring	Eder	Anth	Initiative Lead and Working Group Coordinator, ASU (PD)
Hallett-Desquez, Emily	2018 Spring	Marean	Anth	Postdoctoral Fellow, ASU (PD)
Klassen, Sarah	2018 Spring	BNelson/Redman	Anth	Postdoctoral Fellow, University of British Columbia (PD)

Section VI

STUDENT LEARNING OUTCOMES ASSESSMENT

6.1 Program-level learning objectives

The learning objectives for SHESC's undergraduate programs are based on specific skills and knowledge that are important for success in a wide range of future endeavors, including graduate studies and post-baccalaureate employment. Given substantial growth in the size and complexity of our undergraduate degrees in Anthropology and Global Health, the SHESC faculty launched a major evaluation of the School's undergraduate curricula in 2017-2018 (section 4.5). This identified a set of integrated learning objectives that spanned the Anthropology and Global Health programs (Appendix D) that provide a benchmark for (1) determining where SHESC needs to bolster course offerings and (2) assessing on a regular basis how our course offerings at different stages of the degrees are introducing, reinforcing and assessing the key knowledge and skills that we expect of students earning undergraduate degrees in Anthropology and Global Health.

By contrast, SHESC's graduate programs are designed to permit flexible courses of study based on each students' intellectual interests and career goals. For this reason, learning objectives across graduate degrees are based on professional development—crafting a statement of purpose, synthesizing work in the field, gaining internship experience and reflecting on that experience, designing, presenting, and defending a research proposal, seeking funding for one's proposal, presenting and publishing the results of one's research, and launching a post-graduate career.

6.2. How goals map to curriculum

Appendix D maps how current regularly offered undergraduate courses in Global Health and Anthropology meet our program's key learning objectives in terms of introducing, reinforcing and assessing. A key finding of the evaluation was the relative lack of broadly relevant online courses in specific anthropological subfields—Archaeology and Evolutionary Anthropology—that could serve students in the online Anthropology BA. As table 6.2 illustrates, the vast majority of regular online offerings are in Sociocultural Anthropology (15 courses vs. 5 in Archaeology and 4 in Bioarchaeology/Evolutionary Anthropology.

Table 6.2. Online courses offered in the last 2 years by SHESC that are relevant to the online degree in Anthropology.

Sociocultural	Bioarchaeology and Evolutionary Anthropology	Archaeology
ASB 102: Introduction to Cultural Anthropology	ASM 104: Bones, Stones and Human Evolution	ASB 222: Buried Cities and Lost Tribes
ASB 210: Human Sexuality	ASM 301: People of the World	ASB 333: Frauds, Myths & Mysteries
ASB 300: Food and Culture	ASB 301: Global History of Health	ASB 335: Southwest Archaeology

ASB 305: Poverty and Global Health	ASM 345: Disease and Human Evolution	ASB 362: Plants and Peoples
ASB 316: Money and Culture		ASB 337: Pyramids and Hieroglyphs: Life in Ancient Mesoamerica
ASB 322: Peoples of Latin America		
ASB 327: Disaster!		
ASB 357: Society, Drugs and Health		
ASB 370: Ethics of Eating		
ASB 375: Humans in the Environment		
ASB 378: Globalization: Migration, Mass Media, McDonald's		
ASB 380: Language, Culture and Gender		
ASM 414: Urban and Environmental Health		
ASB 462: Medical Anthropology		
ASB 498: Global Mental Health		
ASB 455: Practicum for the Social Sciences		

As mentioned earlier, SHESC's graduate programs are designed to permit flexible courses of study based on each students' intellectual interests and career goals. For this reason, the core and required courses for each program are centered on professional development and crafting a proposal, as well as an introduction to key theories and methods in each field (Appendix E).

6.3. Assessment plan

Since the last program review, our school has worked with the University Office of Evaluation and Educational Effectiveness (UOEEE) to develop and implement an assessment plan for our four undergraduate degrees (BA and BS in Anthropology, BA in Global Health, and BS in AMLSS), our four doctoral degrees (Anthropology, Global Health, Environmental Social Science, and AMLSS), and our five masters degrees (Anthropology, Global Health, Environmental Social Science, AMLSS, and Museum Studies). Each assessment plan is based on two key learning outcomes which are each assessed with two measures (4 total) and two performance criteria (4 total).

SHESC submits an annual report on whether the performance criteria were met for each of the degree programs. Based on feedback from the UOEEE, SHESC's administration seeks feedback from the Undergraduate Committee comprised of faculty and the executive committee of our graduate student governing body to make appropriate revisions. They also review the criteria on a regular basis and decide what changes (if any) need to be made for the following year.

For undergraduate degrees, SHESC's administration identifies courses that provide appropriate assessments for the stated outcomes. Then faculty are asked to provide data for the full sample of students for the relevant assignment. Faculty are asked to use an objective grading rubric to assess whether the performance criteria were met. For graduate degrees, SHESC's administration identifies courses and degree milestones that provide appropriate assessments for the stated outcomes. When assessments are from courses, faculty are asked to provide the data for the full sample of students in their class. For milestones, all relevant students are sampled.

6.3.1. Doctoral programs. All four doctoral programs have the same assessment structure based largely on milestones to the degree.

Table 6.3.1. Doctoral program assessment structure

Outcome 1: Students will synthesize concepts and scholarship from the field on a contemporary research problem the graduate generates		
	Measure	Performance Criterion
1.1	A written comprehensive examination	≥ 90% of students will receive a score of at least 85% on the comprehensive exam
1.2	Students will disseminate the results of their research through publication/presentation at a professional meeting	≥ 75% of the students completing the program disseminate the results of their work
Outcome 2: Students will synthesize concepts and scholarship from the field on a contemporary research problem the graduate generates		
2.1	Dissertation proposal	≥ 65% of students will receive a score of ≥ 85% on the dissertation proposal in ASM 579 (Proposal Writing) or approved alternative
2.2	Dissertation research funding	≥ 65% of students advancing to candidacy during the evaluation period will seek and obtain dissertation research funding from an outside agency

6.3.2. Masters programs. Masters in passing in three programs (Anthropology, Environmental Social Science, and AMLSS) have the same assessment structure based largely on milestones to the degree. Accomplishment of Performance Criterion 1.2 is satisfied by presenting in SHESC's annual research symposium.

Table 6.3.2a. Masters-in-passing program assessment structure

Outcome 1: Students will synthesize concepts and scholarship from the field.		
	Measure	Performance Criterion
1.1	A written research portfolio	≥ 90% of students will receive a score of at least 85% on the research portfolio.
1.2	Students will disseminate the results of their research through presentation at a departmentally sponsored/approved venue	≥ 75% of the students completing the program disseminate the results of their work
Outcome 2: Will be able to identify a current issue in the field for analysis		
2.1	Statement of purpose	≥ 90% of the students receive a score of ≥ 85% on statement of purpose for post-MA study
2.2	Students will use the statement of purpose as a framework for future graduate study	≥ 60% of the students completing the program go on to further graduate study

Two programs (Global Health and Museum Studies) also offer Masters as a terminal degree and have different criteria geared toward professional advancement

Table 6.3.2b. Masters in Global Health assessment structure

Outcome 1: Students will perform a critical analysis of a global health-related issue		
	Measure	Performance Criterion
1.1	Applied project	≥ 80% of the students will receive ≥ 85% on their applied project
1.2	Students will go on to further graduate study in an area utilizing the knowledge and skills acquired in the degree program	Internal departmental surveys indicate that ≥ 50% of the students completing the program go on to further graduate study
Outcome 2: Graduates will be able to apply concepts and scholarship from the field in real-world global health-related employment settings		
2.1	320-hour internship/practicum	≥ 90% of students completing an internship will earn at least an 'Expected' rating according to the internship/practicum agreement
2.2	Students will be employed in an area utilizing the knowledge and skills acquired in the degree program	≥ 65% of the students completing the program are appropriately employed according to the ASU Alumni Office surveys in areas including health education, nonprofit agencies, government agencies, or NGO's with a health-related focus or mission

Table 6.3.2c. Masters in Museum Studies assessment structure

Outcome 1: Students will perform a critical analysis of a museum-related issue drawing upon key concepts in the field of anthropology, art history, or public history		
	Measure	Performance Criterion
1.1	Students will be assessed by their performance on a written research portfolio	≥ 80% of the students will receive ≥ 85% on their research portfolio
1.2	Students will disseminate the results of their research through publication/presentation at a professional meeting	≥ 75% of the students completing the program disseminate the results of their work
Outcome 2: Students will apply theories of collection or exhibit management to improve public knowledge and maintain cultural resources for future research or display		
2.1	320-hour internship at a museum/related agency.	≥ 90% of students completing an internship will earn at least an 'Expected' rating according to the internship agreement.
2.2	Employment/continuing graduate study in a position/program related to museum studies or related museum issues	≥ 75% of the students completing the program will go on to employment/graduate study in a position/program related to museum studies or related museum issues.

6.3.3 Undergraduate programs. SHESC's undergraduate degrees in Anthropology, Global Health and AMLSS have unique assessment structures based on course- and externship-related activities that are specific to each field.

Table 6.3.3a. BA and BS in Anthropology assessment structure

Outcome 1: Will demonstrate the practical application of the methods of anthropological data collection and analysis.		
	Measure	Performance Criterion
1.1	Research project in anthropological field school, study abroad program, research internship or comparable experience	≥ 80% of the students who participate in an anthropological field school, study abroad program, research internship and/or comparable experience will receive a grade C or higher on their final research project
1.2	Senior research project in an upper division anthropology course (300 or 400 level) to be determined at a later time	≥ 75% of students who participate in an upper division anthropology course (to be determined at a later time) will receive a C or higher on a research project
Outcome 2: Students demonstrate understanding of the key anthropological concepts of evolutionary theory and cultural relativism		
2.1	Data collection and analysis assignment in ASB 102 (such as the Exchange of Chocolate assignment)	≥ 80% of majors in ASB 102 will receive a C or higher on the data collection and analysis assignment.
2.2	ASM 104 Human Evolution Lab (currently #2.1)	≥ 80% of majors in ASM 104 will receive a C or higher on the human evolution lab

Table 6.3.3b. BA in Global Health assessment structure

Outcome 1: Will demonstrate skills in data collection and analysis as it pertains to social science and allied theories of health		
	Measure	Performance Criterion
1.1	Will complete data collection and analysis for project in practicum course	≥ 80% of the students will earn ≥ 80% on the data collection and analysis of research project as part of a practicum course such as ASM 414: Urban and Environmental Health or equivalent
1.2	Complete research component of SSH 403: Cross-cultural studies in global health	≥ 80% of the students will earn ≥ 80% on the research project component of SSH 403
Outcome 2: Will be able to clearly articulate the key elements of the field of global health in both verbally and in written format		
2.1	Global health written reflection statement in SSH 403: Cross-cultural studies in global health	≥ 80% of students will receive a C or higher in their global health written reflection statement in SSH 403
2.2	Global health oral reflection statement in SSH 403: Cross-cultural studies in global health	≥ 80% of students will receive a C or higher in their global health oral reflection statement in SSH 403

Table 6.3.3c. BA in Applied Math in the Life and Social Sciences assessment structure

Outcome 1: Will write a project proposal regarding mathematical modeling		
	Measure	Performance Criterion
1.1	The written project proposal for capstone project in AML 406	≥ 80% of the students will earn ≥ 80% on their written proposal
1.2	The initial mathematical model for capstone project in AML 406	≥ 80% of the students will earn ≥ 80% on their initial mathematical models
Outcome 2: Students will be able to conduct independent research in applied mathematics for the life and social sciences		
2.1	Complete a capstone project in AML 406	≥ 80% of the students will earn ≥ 80% on their capstone project
2.2	The oral presentation of capstone project for AML 406	≥ 80% of the students will earn an 80% or better on their oral presentation

6.4. Reports of assessment efforts already undertaken since last review

Based on feedback from UOEEE and in conversations with faculty, SHESC made a major revision to assessment plans in most degrees in 2013. Appendix G contains the reports for our degree programs for 2013-2017 as well as the most recent summary of feedback from UOEEE for the last seven years.

***6.4.1. Doctoral programs*.** As indicated in the reports, the performance criteria for the four doctoral programs have generally been met between 2013 and 2014. In those rare cases where the strict benchmark was not clearly met, it was in programs with small sample sizes and thus a great deal of uncertainty in any specific year's assessment.

6.4.2. Masters-in-passing programs. The performance criteria for the three masters-in-passing programs (Anthropology, Environmental Social Science, and AMLSS) were met in all but one case, when a large number of students completing their AMLSS MS did not continue to the PhD program (5 of 9 in 2015-2016).

6.4.3. Terminal Masters programs. In the Global Health and Museum Studies reports, there was more uncertainty about the completion of some performance criteria. For both programs, this is due to incomplete information about the job placement of graduates which indicates the need for comprehensive tracking of graduates. Moreover, the two performance criteria aimed at post-graduate placement—one about further graduate studies and one about job placement—should likely be combined, since some portion of graduates take one track or the other, but not commonly both directly after graduation.

6.4.4. Undergraduate programs. Since the revision of assessment plans in 2013, the performance criteria for the four undergraduate degrees have generally been met. Due to changing availability of classes, the specific assessments have occasionally changed. For example, performance criterion 1.2 in the Anthropology degree has variously been met by research projects in ASB 375: Humans and the Environment, ASB 490: Earliest Cities, or ASB 462 Medical Anthropology. The activity to assess performance criterion 2.1 has changed based on changing assignments in ASB 102—Participant observation and interview assignment to a thematic comparison of the meaning of chocolate exchanges in two contexts. In Global Health, the assessment for performance criterion 1.1. has variously used research projects in ASB 100 Intro to Global Health, ASM 414 Urban and Environmental Health, and ASB 494 Access, Equity and Inclusion in Higher Education.

6.5. Refining assessment and improving student learning in the major

A number of issues with how our unit conducts and uses its learning assessments deserve attention.

First, although we have streamlined our degree programs, there are still several legacy concentrations that complicate administration and assessment. We have had to keep several of these concentrations active because students who enrolled in them are still in the respective program. As these students graduate, we plan to disestablish these concentrations, including Urbanism concentrations in ESS, Evolutionary Global Health Sciences and Culture and Health in Global Health.

Second, we have set up relatively comprehensive tracking of doctoral students, and it will be important to extend this to masters students who graduate with either masters-in-passing or masters in Global Health or Museum Studies.

Third, it appears that some criteria may need to be changed to reflect how they are actually being assessed and what the program considers important. For example, it may be sufficient to count applications for external doctoral funding (rather than successful applications) and raise the proportion of students we expect to apply for such funding.

Finally, the faculty have engaged in a systematic discussion to identify a broader range of learning objectives in the undergraduate curricula in Anthropology and Global Health. The draft set of objectives from these conversations may not ultimately drive how we report to UOEEE, but it will guide how the School plans course offerings and make decisions about new courses. As an example, we have identified the need to develop more online courses in Archaeology and Evolutionary Anthropology to support the online degree in Anthropology—which is currently served mostly by courses in Sociocultural and Global Health.

World cloud based on key words mined from SHESC faculty publications (https://asu.pure.elsevier.com)

Section VII

FACULTY PROFILE

7.1 Introduction

Our previous self-study described a highly productive and collegial faculty that was internationally recognized for its scholarship and teaching. Despite considerable change from retirements and new hires, the faculty has largely retained these qualities. They have also continued to garner local, national, and international recognition for their teaching, research, and outreach. Anne Stone was inducted into the National Academy of Sciences. Magdalena Hurtado and Joan Silk were elected into American Academy of Arts and Sciences. Sarah Mathew received a Carnegie Foundation award. Curtis Marean was named a Foundation Professor, and Alexandra Brewis, Kaye Reed, and Amber Wutich were named President's Professors. These are just some our faculty members' achievements.

Although honors are often bestowed on individuals, our school's greatest strength lies in the highly collaborative spirit that permits our faculty to build new synergistic teams both within our school and beyond. These collaborations knit our large and diverse School together and forge links with other units and universities. They also contribute to our continued growth on nearly all measures, while positioning us as a leader in the social sciences in general, and anthropology in particular. In this section, we describe how our faculty has changed in recent years and how it continues to contribute to the mission of the School through collaborative inquiry, teaching, service, and outreach. We conclude with efforts to address ongoing and emerging challenges of increasing faculty diversity, managing a spatially distributed faculty, and sustaining high levels of productivity.

Table 7.1a. SHESC faculty profile. T/TT = Tenured and tenure-track

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	CLAS 2017-18
T/TT headcount[1]	43	42	44	48	48	49	48	-
Degrees/Faculty FTE	4.3	5.1	5.3	4.8	5.1	5.0	5.1	8.2
% Women[1]	44.2%	42.9%	43.2%	39.6%	43.8%	40.8%	41.7%	37.2%
% Minority[1]	7.0%	4.8%	6.8%	6.3%	8.3%	10.2%	10.4%	24.7%
Faculty Headcount[2]	48	46	50	53	54	57	58	-
T/TT Faculty FTE[3]	40.5	39.9	42.2	45.2	44.9	46.2	44.2	-
Total Faculty FTE[2,3]	42.9	43.0	46.3	49.0	48.3	49.1	47.6	-
Student/Faculty FTE	24.8	26.9	23.9	23.9	25.6	28.2	34.0	34.3
Staff FTE[3]	25.9	22.9	16.5	16.6	16.6	13.4	16.9	-
RA/TA FTE[4]	34.2	35.7	35.0	30.8	28.0	29.3	31.7	-

[1] Headcount - Full-time tenured / tenure track faculty (50% or more FTE), including department chairs.
[2] Total faculty includes professors, instructors, lecturers, and faculty associates
[3] Employees FTE paid from state funds only as of the end of September
[4] RA/TA FTE paid from state, local, and sponsored funds by end of September (ABOR code 7)

7.2 Faculty Demography

After an initial increase following our school's founding, the number of tenured and tenure-track faculty reached a relatively stable plateau in 2007 (Table 7.2a). The large majority of our hiring since 2011 has intentionally aimed at the junior level (10 of 15 as Assistant Professors) to avoid becoming a "top-heavy" program, a concern raised in our previous self-study. For this reason, the composition of ranks has also remained relatively stable since the last review—20% assistant, 25% associate, and 55% full. Since 2011, 21 faculty have been promoted and/or tenured, replacing retirements and departures. SHESC also currently includes 2 Assistant Research Professors, 4 Research Professors, 2 Lecturers, 1 Instructor, 2 Assistant Research Scientists, and 15 Postdoctoral Fellows.

Figure 7.2a. Historical Changes in Tenured and Tenure-Track Faculty

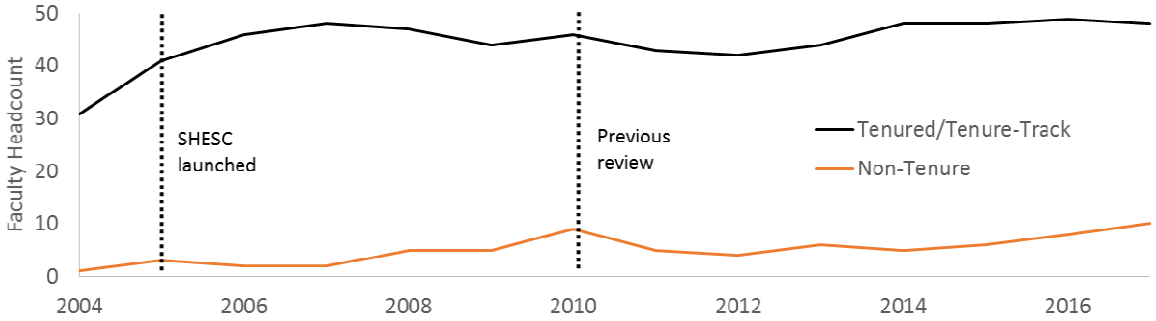


Table 7.2a. Changes in Tenured and Tenure-track faculty by Primary Approach Since 2011

	Recruited	Retired	Vacated	Change
Applied Math Life/Social Sci	2	0	1	1
Archaeology	4*	2	0	2*
Bioarchaeology	0	1	1	-2
Evolutionary Anthropology	6	1	1	4
Environmental Social Science	0	2	2	-4
Global Health	2	0	1	1
Sociocultural	4	2	1	1

*Includes hire beginning 2018-2019 academic year

The greatest number of hires in the last 7 years have been in evolutionary areas as part of the recruitment of Professors Robert Boyd and Joan Silk (2+5 hires) as well as SHESC's

association with the new Center for Evolutionary Medicine (CEM; 2 hires). These new hires include archaeologists, cultural anthropologists, endocrinologists, primatologists, medical anthropologists, and theoretical ecologists. In addition, we have had the opportunity to hire a linguist and sociologist. Hires in archaeology have also helped to maintain our traditional strength in this subfield. Meanwhile, two of the School's smaller approaches have experienced reductions, with one of the bridging approaches—Environmental Social Sciences—witnessing a 50% decline in primary faculty.

During this time, the diversity of our school's faculty has slowly increased. At the school's founding in 2005, there were no minority faculty members and women represented only 32% of tenured or tenure-track faculty. Since then, the representation of women grew to over 40% by 2011 where it has plateaued. Moreover, the representation of minority faculty has steadily increased from 0% to 10%, but still falls far below the College average of 25%. We describe efforts to remedy this situation below.

7.3 Collaborative Inquiry

SHESC was created as an experiment in collaborative inquiry, where teacher-scholars build teams across fields to answer pressing questions and to solve emerging problems. From the beginning, specific problems and questions emerged from existing faculty strengths in human origins, human-environment interactions, human health and disease, migrations, institutions and urban ecologies.

This experiment was fostered in its early years by the President's investment in a 5-year research initiative "Late Lessons from Early History" (2008-2012). The initiative granted eight competitive awards of approximately $400K to collaborations that crossed disciplinary boundaries to develop novel research trajectories. These included research on comparative urbanism, migration, environmental justice, health disparities, and human origins.

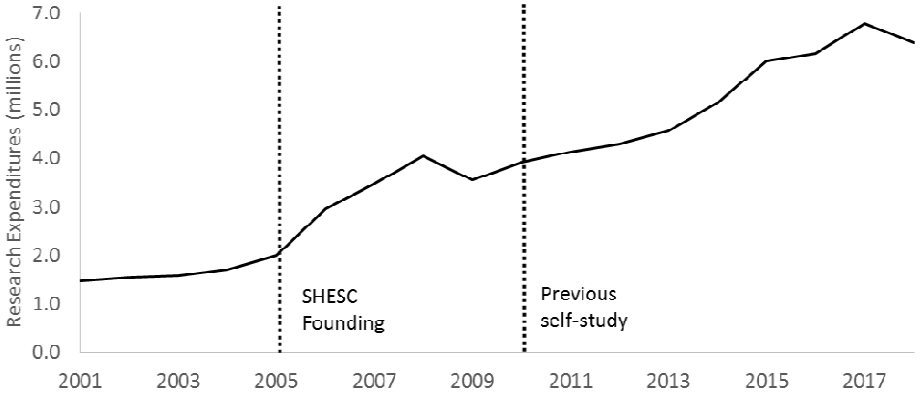
The School's previous program review coincided with the end of this initiative, and at the time, site visitors raised serious concerns about the sustainability of these collaborations once the initiative funding ended. Seven years later, we are in a position to assess the durability and productivity of SHESC's emerging collaborations based on a number of indicators: (1) faculty research accomplishments, (2) the growth and durability of successful collaborations, and (3) the integration of the overall unit based on productive collaborations.

7.3.1 Research Accomplishments. By the blunt measure of research expenditures, SHESC has maintained substantial growth, with a 54% increase since 2011 which has built on already large growth in the previous 7-year period (Figure 7.3.1a). Meanwhile, the number of faculty in the unit has stayed largely constant since 2007 (Figure 7.2a). Thus, the increase can be attributed nearly entirely to increasing faculty productivity.

This steady increase is due in part to a culture of active grant-writing (537 proposals submitted 2011-2018 with a success rate of 41% of those submitted 2011-2016) and a focus on collaborative grants that reach beyond our school (64% of all proposals involved SHESC as the

lead unit). This productivity also stems from the fact that nearly all of our faculty are actively engaged in research to varying degrees—100% of faculty published at least one peer-reviewed paper or book last year, and 78% have been an investigator on at least one external grant since 2016.

Figure 7.3.1a. Historical change in SHESC's sponsored research expenditures by fiscal year



Of the 1020 scholarly works published by SHESC faculty in the past five years (SciVal, 1/2013-12/2017), 25% are ranked as the top 10% most cited worldwide, and 64% are published in the top 10% of journals. On average, their publications are also 2.5 times more likely to be cited than other publications in their field (SciVal field-weighted citation impact). The mean h-index of the SHESC tenured and tenure-track faculty is 17, with a maximum of 45, and the average number of total citations is 1872.

Table 7.3.1a. Select awards for advances in knowledge and discovery

National/International Awards	**2011-present**	**Pre-2011**
National Academy of Sciences	Stone	Buikstra, Wiessner, Bernard
American Academy of Arts and Sciences	Hurtado, Silk	
AAAS Fellow	Brewis, Schwartz, Smith, M. Nelson	Castillo-Chavez, Buikstra, Kimbel, Stone
Andrew Carnegie Fellow	Mathew	
Pomerance Award*	Marean	Buikstra
UNEP Champion of the Earth	Van der Leeuw	
Explorers Club Medal		Johanson
NSF Faculty Early Career Award	Hruschka	Gaughan, Anderies
Major University Awards		
Regents Professors	Stone	Buikstra, Castillo-Chavez
Foundation Professors	Marean	Van der Leeuw
Presidents Professors	Reed, Brewis, Wutich	M. Nelson
Defining Edge Research Award	Anderies, Hruschka	Marean, Schwartz

- For scientific contributions to archaeology, Archaeological Institute of America

The steady increase in research activity has placed our school in the top ranks of comparable programs in the U.S. and worldwide. By anthropology expenditures, our school is first among anthropology departments (Table 3.2). SHESC's research activity has contributed to ASU ranking #1 in anthropology research expenditures (Table 3.2, 2017 HERD) and #1 nationally and #4 internationally in publications in top-tier anthropology journals (Table 3.2, CWUR). Based on their individual research achievements, faculty have also been recognized at local, national, and international levels (Table 7.3.1a).

7.3.2. Growth and durability of successful collaborations. School-level productivity and individual awards ignore a crucial engine—productive collaborations—generating much of this growth in research activity. Continuing our school's strong record of leadership in large interdisciplinary grants, since 2011, our faculty have played key roles in new NSF-funded collaborative projects:

- Coupled Natural and Human Systems (CNH: Abbot, Barton, Anderies, Hegmon, Kintigh, M. Nelson, York)
- Research Collaboration Networks (RCN: Anderies, Barton, Kintigh, M. Nelson)
- Frontiers in Earth Systems Dynamics (FESD: Reed, Campisano)
- Integrative Paleonthropology Grants (IPG: Campisano, Reed, Marean, Hill)
- Data synthesis (RIDIR: Kintigh, Peeples: SPOKE: Barton)
- Inclusive faculty development (ADVANCE: Gaughan).

Our faculty have also reached out beyond NSF to support team-based research, successfully gaining funding for large collaboration grants from the NIH, USDA, USAID, CISCO fund, Hyde Family Foundation and the John Templeton Foundation. To support graduate education, our faculty have also joined University-wide teams to plan and apply for new NSF Research Traineeship grants. Due to these efforts, since 2011, faculty in our unit have been awarded 35 major external awards that involved multiple SHESC faculty investigators.

These projects include SHESC-originated projects that require diverse expertise from faculty across SHESC and other units as well as long-running university-wide projects that rely on the methodological and theoretical strengths of SHESC faculty (e.g., NSF-funded Central Arizona Phoenix Long–term Ecological Research Site and Decision Center for a Desert City). Between 2012 and 2018, faculty in our school have collaborated with faculty in 89 departments across 15 of the University's 16 other colleges. The connections and institutional awareness necessary to build such teams is due in part to school, college, and university efforts to sponsor regular meetings that bring faculty together around common problems and questions. Another important ingredient is the School's physical structure which encourages faculty from different fields and disciplines to interact spontaneously on a daily basis in common spaces.

Late Lessons in Early History (LLEH), described earlier, served as a key catalyst for many of these novel collaborations, and we can trace some of these collaborations to observe how they grew and developed. One LLEH project, *Urban Organization through the Ages: Neighborhoods, Open Spaces, and Urban Life*, brought together a team including archaeologists (Smith, Stark), a geographer (Boone), a sociologist (Harlan), and political scientist (York) to study historical changes in urban space and its relationship to access to basic resources. After the end of LLEH funding, the project was awarded a collaborative grant from NSF for $400K to explore public service provisioning in premodern cities from four social science programs—Archaeology, Geography, Political Science, and Sociology—which had never collaboratively funded a proposal together in the past. Over the last decade, the combined LLEH and NSF funding has resulted in more than twenty publications in diverse journals including: *Urban Studies, Journal of Urban History*, and *Urban Geography*. Over twenty undergraduates and eight graduate students have contributed to exhaustive digitizing of 21 premodern cities and coding of contextual variables based upon the empirical literature. The project continues to produce new analyses based upon the integrated contextual geodatabase of premodern cities.

Another LLEH project was led by paleoanthropologists and geologists from two different schools (SHESC: Campisano, Reed, Kimbel; and SESE: Arrowsmith). *Geoinformatics-based data integration for the study of the Pliocene fossil-bearing strata of the Hadar Basin (Afar, Ethiopia)* was instrumental in integrating decades of diverse data sources in digital and paper format into a comprehensive geological and paleontological database for the Hadar paleoanthropological site. This database was made freely available via Google Earth and helped form the foundation of the NSF-funded Paleo Core project. Fieldwork support from the LLEH also led to the discovery of fossil and archaeological sites that were leveraged to help generate nearly $1M in subsequent external funding that have so far led to a half-dozen publications including two in *Science*.

These are only two of the ongoing collaborations that define the research activity in our school. Other particularly productive areas of research in the last seven years have included:

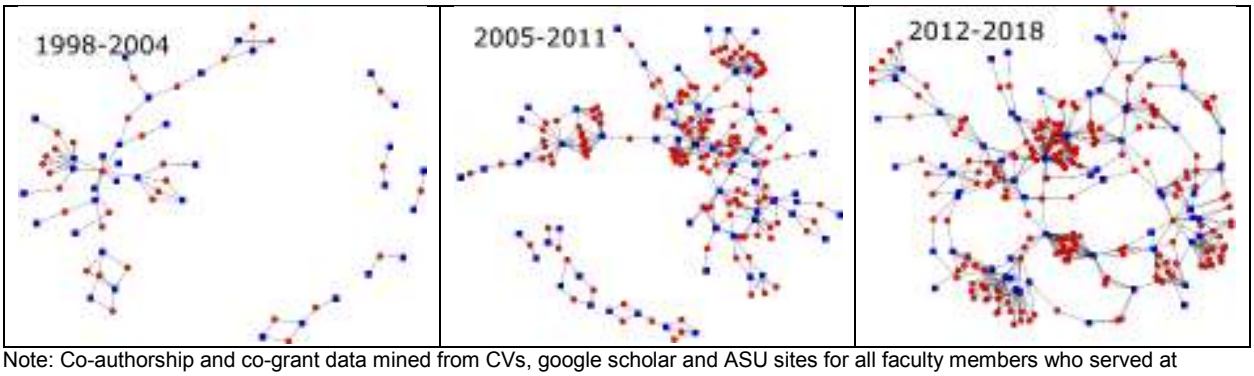
1) Human-environment interactions at multiple scales
2) Urban ecology
3) Health and human disease
4) Novel techniques for decoding the human experience in prehistory
5) Human origins
6) Cultural and social evolution

In addition to these established research trajectories, our faculty are embarking on funded projects that tackle novel challenges affecting both the university and society. These include projects aimed at fostering inclusion and diversity at all levels of the academic enterprise, large-scale data-synthesis in the social science, and monitoring and evaluation of international development in diverse populations.

7.3.3. Overall unit integration. An alternative measure of the unit's research activity is the degree to which individual faculty members depend on the expertise of others in the unit to pursue their research (i.e., functional dependence). If everyone pursues their research independently, there is no functional dependence. If clusters of collaboration emerge, this indicates higher levels of functional dependence. If there are multiple clusters without collaborative ties between them, this may mean either the lack of opportunities for productive collaboration or potential opportunities that have yet to be identified and brokered.

Figure 7.3.3a depicts historical changes in one measure of functional dependence—connectivity through co-authorships on peer reviewed publications and shared grants (external grants > 50K). The three snapshots across the three most recent review periods (1998-2004, 2005-2011, and 2012-2018) show the emergence of rich new ecology of collaborations. Moreover, by the most recent review period (2012-2018), previously disconnected subclusters had merged into a larger collaboration cluster that now spans most of the faculty. It is difficult to determine the degree to which this transition was due to the school's formation (2005), to university-wide efforts to encourage collaborations (e.g., the President's Initiative, 2008-2012), to the changing composition of faculty, or to other factors. However, it is clear that the School entered a novel state of scholarly collaboration that continues today.

Figure 7.3.3a. Faculty scholarly collaboration within SHESC during three time periods—1998-2004, 2005-2011, 2012-2018 (major external grants and peer-reviewed publications): Blue squares = faculty; red circles = grants or papers.



Note: Co-authorship and co-grant data mined from CVs, google scholar and ASU sites for all faculty members who served at SHESC or the former Anthropology Department between 1998 and 2018. The year for a grant or publication is the year it was awarded or published.

7.3.4. Areas of Research. The subject area of SHESC publications represents the diversity of its faculty, with subjects covering the social, biological, environmental, and earth sciences as well as the arts and humanities and beyond. Similarly, the top publication venues for SHESC research include the leading journals in biological anthropology, paleoanthropology, archaeology, human ecology and multidisciplinary science (with number of publications from 1/2013-12/2017, ASU SciVal):

- *PLoS ONE* (37)
- *Proceedings of the National Academy of Sciences USA* (36)
- *American Journal of Physical Anthropology* (31)
- *Journal of Human Evolution* (26)
- *Ecology and Society (20)*
- *Nature* (19)
- *Science* (18)
- *American Journal of Human Biology* (12)
- *Current Anthropology* (12)
- *Philosophical Transactions of the Royal Society B: Biological Sciences (11)*
- *Journal of Archaeological Science* (11)
- *Evolutionary Anthropology* (10)
- *Nature Communications (*10)
- *Journal of Archaeological Science: Reports* (9)
- *Behavioral and Brain Sciences* (9)
- *Evolution and Human Behavior* (9)
- *International Journal of the Commons* (9)
- *Scientific Reports* (9)
- *Ecological Economics (8)*
- *Animal Behaviour (8)*
- *Human Nature (8)*
- *Proceedings of the Royal Society B: Biological Sciences (8)*

The broad geographic reach of SHESC is also visible in the high proportion of publications (43%) that include researchers in foreign countries.

7.4 Teaching and Mentoring

SHESC's faculty are committed to sharing their expertise and knowledge in a variety of contexts. In addition to teaching and mentoring undergraduates in our four majors (Anthropology BA and BS, Global Health BA, AMLSS BS) in in-person and online contexts, they have created hands-on research opportunities for nearly 1000 students through SHESC's research apprenticeship program and supervised over 90 honors theses since 2011. At the graduate level, our faculty actively support training in five degree programs—PhDs in Anthropology, Environmental Social Science, and Global Health and MAs in Museum Studies and Global Health—and two certificate programs.

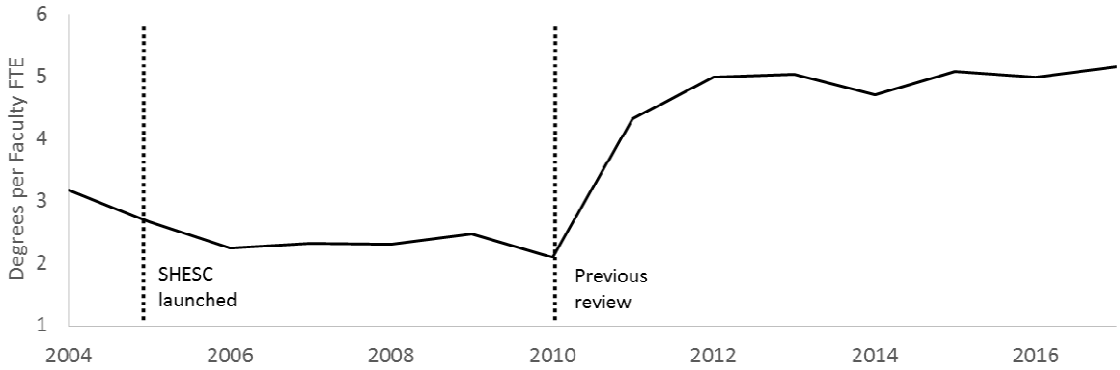
To support these efforts, the School's faculty have embraced changing expectations regarding teaching modes, opportunities to teach new interdisciplinary classes and support interdisciplinary majors, and teaching innovations such as "flipping the classroom" where

instruction is collaborative, discussion-based, and incorporates class activities instead of simply lecturing to the class. Our faculty have been particularly active in creating online learning opportunities for both undergraduate and graduate students, with over 60% of tenured and tenure-track faculty having experience providing online and hybrid courses in addition to in–person courses.

Our faculty's efforts have been recognized with numerous awards for excellence in teaching, including the Carnegie CASE Arizona professor of the year (Wutich), Zebulon Pearce Teaching Award (M. Nelson, Smith, Wutich), Associated Students of ASU's Centennial Professorship Award (Hruschka, Reed, M. Nelson), the Outstanding Doctoral Mentor Award (Kintigh, Wutich), ASU Parents Association Professor of the Year (M. Nelson), the Excellence in Diversity and Inclusion award (Smith), and four President's Professorships (Brewis, M. Nelson, Reed, Wutich) which recognize professors who have exceeded ASU's highest standards for a teacher-scholar.

Figure 7.4a. Historical trend in student FTEs per faculty FTE (state-funded)

Figure 7.4b. Historical trend in degrees graduated per faculty FTE (state-funded)



SHESC's faculty and staff have made great strides in increasing their reach to students. Since the last year covered by the previous program review (2010-2011), SHESC's faculty grew the number of FTEs produced per faculty (state-funded FTEs) by 64% and are currently in line

with College averages (SHESC 34.0 vs. College 34.3) (Figure 7.4a). During that same time, SHESC faculty have more than doubled the degrees graduated per tenured and tenure-track faculty (2.3 in 2010-2011 compared to 5.1 in 2017-2018) (Figure 7.4b). This dramatic increase is due in part to substantial growth of SHESC's Global Health undergraduate degree. However, there is still room for improvement, as the overall value is still below the current College average of 6.5 degrees per faculty FTE.

7.5. University and Academic Leadership

7.5.1. University Leadership. Our faculty hold a large number of University leadership positions well beyond our unit, including two in dean-level appointments (Boone [School of Sustainability, Dean], and M. Nelson [Barrett, the Honors College, Vice Dean]), 15 faculty and two staff leading research centers (Barton, Castillo-Chavez, Kintigh, Knudson, McManamon, Peeples, Stone, Wutich, York), institutes (Kimbel, Marean, Bernard), and other enterprises (Toon, Innovation Gallery; Brewis, Schuster, Global Impact Collaboratory; Scott, Deer Valley). Six also direct university-wide transdisciplinary graduate degree programs (Tsuda, Toon, Barton, Boone, and Castillo-Chavez).

7.5.2*. National and International Leadership.* SHESC faculty also take on a wide range of national and international leadership roles in their respective fields. They serve as presidents, officers and board members of international organizations, editors and associate editors of international journals, and members of advisory panels for scientific and development organizations. They serve as panelists and reviewers for numerous funding agencies and foundations, such as the National Science Foundation, Wellcome Trust, Wenner-Gren Foundation, and the Templeton Foundation. They also serve as instructional leaders by training students, postdocs and professors in a range of methods, sharing their knowledge through multiple avenue, including NSF-funded training programs, undergraduate summer institutes (e.g., Mathematical and Theoretical Biology Institute), and workshops at ASU and national conferences.

Our faculty have played key roles in supporting academic conferences for a wide range of organizations—the Human Biology Association, American Association of Physical Anthropologists, Human Behavior and Evolution Society, Paleopathology Association, the Society for American Archaeology, the Western Bioarchaeology Group. They have served as chairs, steering committee members, program committee members, plenary session organizers, and as award judges. They have also led efforts to bring major conferences to ASU, including the Conference on Complex Systems 2015, Western Bioarchaeology Group 2015, Society for Economic Anthropology 2018, and Cultural Evolution Society 2018. They have also created the Southwestern Association of Biological Anthropologists (six states) that just completed its 6th annual meeting.

Editorships and Associate Editorships (2011-2018)	
American Journal of Physical Anthropology (2)	International Journal of Paleopathology (2)
Archaeology of Gender Series	Journal of Economic Behavior and Organization
Behavioral Ecology and Sociobiology	Journal of Human Evolution
Bioarchaeology International	Molecular Biology and Evolution
Current Research on Cities Series	New Directions in Sustainability and Society
Evolution and Human Behavior	Quaternary Research
Field Methods (2)	Yearbook of Physical Anthropology
Frontiers in Ecology and Evolution, Urban Ecology	
Editorial Boards (2011-2018)	
Americae (2)	Intl Journal of Sustainable Urban Development
American Journal of Human Biology	Journal of Anthropological Research
Anales del Museo de America	Journal of Archaeological Method and Theory (2)
Ancient Mesoamerica	Journal of Computer Applications in Archaeology
Anthropology and Global Public Health Series	Journal of Human Evolution
Environmental Justice	Journal of Paleoanthropology
Evolutionary Anthropology	Medieval and Renaissance Latin America Series
Field Methods	Revista Chungara
HOMO	Research Evaluation
Human Ecology	Research Handbooks in Archaeology Series
Human Nature	SAGVNTVM
International Journal of Geoarchaeology	
Academic Society Positions (2011-2018)	
AAA, Archaeology Division President	AAAS, Governing Board, Anthropology Section
AAA, Archaeology Division Secretary	ASA, Committee on the Status of Women in Sociology
AAA, Evolutionary Anthropology Society Board	HBA, President
AAPA, Executive Committee (2)	Paleopathology Association, Executive Committee
AAPA, Nominations Committee (2)	
Academic Advisory Boards and Expert Panels (2011-2018)	
American Sudanese Archaeological Research Center, Advisory Panel	Kobe College Corporation Japan Education Exchange, VP of Programs
Amerind Foundation, Board of Directors and Chair of Academic Programs	Max Planck Institute, Leipzig and Jena, Scientific Advisory Boards
Canadian Institute for Advanced Research, Scientific Advisory Board	National Center for Atmospheric Research, Social Dimensions Working Group
Center for Desert Archaeology, Advisory Board	National Institutes of Health, Expert Panel
Center for Global Security and Cultural Transformation, Board Member	Network for Computational Modeling in Social and Ecological Sciences, Director
Climate Change, Adaptation, and Sustainability, Technical Commission	OSGeo Foundation, Public Geospatial Data Committee
Council of Environmental Deans and Directors, Chair	President's Committee on the National Medal of Science
Digital Antiquity, Board	Primates, Advisory Board
Ernst Strüngmann Forum, Scientific Advisory Board	SRI Foundation, Board
European Research Infrastructure for Research and Innovation Policy Studies, Project Review Board	State of Alaska NSF EPSCoR program, External Expert Advisory Council, Chair
GRASS GIS international development team, Project Steering Committee	UCLA Sustainable LA Grand Challenge, Technical Advisory Committee
Institute for Advanced Study, Toulouse, Scientific Council	UN Urbanization and Global Environmental Change Programme, Scientific Steering Committee
IGERT on Urbanizing Tropics, Advisory Board	Yearbook of Mummy Studies, Board of Directors
Leakey Foundation, Scientific Executive Committee	

7.6. Community Engagement. Since 2011, faculty have maintained ongoing partnerships with local and global communities and shared their knowledge and expertise through diverse venues, from elementary school presentations to international television appearances. Many of these efforts are initiated by individual faculty, but many SHESC-affiliated enterprises—including the Institute of Human Origins, the Innovation Gallery, and the Deer Valley Petroglyph Preserve—also have dedicated public outreach components.

7.6.1. Community partnerships. In their work, our faculty maintain deep engagements with communities in Arizona, the U.S. and the world. These include advisory positions where they share their expertise, board memberships where they share leadership on community projects, and partnerships where they build teams of multiple stakeholders to solve community-identified problems.

Global and Local Community Partnerships	
Arizona Game and Fish	Native American Graves Protection and Repatriation Act Review Committee
Arizona Dept. of Health Services, Advisory Committee	Ngogo Chimpanzee Project
ALDEA, Board of Directors, Vice President	Our Family Services
Australian Research Council Center of Excellence for Australian Biodiversity and Heritage, Advisory Comm	Phoenix Mayor's office
Bureau of Land Management	Phoenix Neighborhoods Connect, Board of Directors
Centers for Disease Control and Prevention	Salt River Project
Epidemiology advisor San Carlos Apache Tribe	Science of Water Art with Arizona 4th graders
Fit PHX Energy Zones	Sci-Tech Festival, consultant
Global Ethnohydrology Project	The Nature Conservancy
Household Water Insecurity Global Network	Teotihuacan Research Laboratory Visits/Tours
Casa de los Ninos, Board	Tsimane Health and Life History Project
LAMB Project for Community Development, Bangladesh	US Forest Service
Latin American Art Alliance, Executive Board	

7.6.2. Public lectures and media appearances in prominent regional, national and international venues. SHESC faculty regularly share their discoveries, insights, and expertise on topics of public interest—e.g., human origins, Mesoamerican and Southwest archaeology, sustainability, and global health—through public presentations and media appearances to both local and global audiences. These include frequent public lectures at national and international universities and media interviews to outlets including, The Economist, BBC, LA times, The Guardian, The Atlantic, Huffington Post, Times of London, Wall Street Journal, Archaeology Magazine, Science News, Fast Company, Der Spiegel, New York Times, Slate, Zocalo Public Square. SHESC faculty and staff also maintain nationally recognized web sites aimed at sharing knowledge about human evolution (becominghuman.org), synthesizing and sharing archaeological data (tdar.org), and providing a toolkit for K-12 instructors aimed at anthropological questions and topics (AskanAnthropologist.org).

ASU	
ASU's Night of the Open Door	Health Services at ASU
ASU Now magazine	President's Origins Series
ASU Graduate Mentoring Initiatives	Sigma Xi, ASU
ASU Beyond Center student club	State Press
Barrett Honors College	Verdes ASU Lecture Series
CLAS faculty development roundtables	
Phoenix Community	
Arizona Science Center	Mayo Clinic, Scottsdale
Archaeology Southwest – Archaeology Café	PBS (Horizon/Horizonte)
Arizona Archaeological Society	Pueblo Grande Museum, Mesa
Deer Valley Petroglyph Preserve	Phoenix Zoo
KJZZ local public radio	Spirit of the Senses salon series
Institute of Human Origins outreach talks	Tempe Center for the Performing Arts
Maricopa Community Colleges	
Regional venues	
American Research Center in Egypt chapters	Linda Hall Library Kansas City
CA Authors' Festival	Los Angeles Natural History Museum
Colorado Archaeology Society	Omaha Zoo
College Peaks Forum, Buena Vista, CO	Rotary Club of Godfrey-Alton, IL
Explorers Club, NYC	San Diego Explorers Club
Egypt Exploration Organization of Southern CA	San Francisco Exploratorium
Instituto Colombiano de Anthropologia y Historia	
National venues	
American Museum of Natural History	New Scientist
Freedom from Religion Foundation	NPR's the Show
GOOGLE	PBS Nova
documentary film, Rise of the Warrior Apes	TEDWomen San Francisco
Patrusky Lecture at the Council for the Advancement of Science Writing	Raymond and Beverly Sackler Distinguished Lecture in Archaeology
National Association of Biology Teachers	Scientific American
National Geographic Channel	Santa Fe Institute
National Geographic Society	Tanner Lectures, Princeton University
National Science Foundation, SBE Distinguished Lecture	
International venues	
Austrian Broadcasting Corporation	Instituto Colombiano de Anthropologia y Historia
Alcalá de Henares museum	National Museum of Georgia
Barcelona at the Cosmocaixa museum	Söderköping's Commune Sweden
Archaeology Museum, Apaxco, Mexico	Casa de Cultura, Tequixquiac, Mexico
Casa de Cultura, Xaltocan, Mexico	Leading outreach trips in Tanzania, Ethiopia, northern Spain, and Indonesia
Foundazione Giancarlo Ligabue	Addis Ababa, Ethiopia

7.6.3. K-12 school visits and instructional packages for K-12 teachers. Our faculty also regularly share their discoveries and expertise in presentations to K-12 audiences while also developing curricular tools for K-12 teachers.

K-12 presentations	
Central Bucks School District	R.F. Staples Secondary School, Westlock, Alberta, Canada
Cesar E. Chávez Leadership Institute's Summer Program	Seattle high schools
Gary K. Herberger Young Scholars Academy	Stuart Hall High School
GUTSy girls science club, Sante Fe, NM	Sibagat National High School, Philippines
"Earth Day" celebrations in Bigodi, Uganda.	Tempe Preparatory Academy
Kyakagunga primary school, Uganda	Upward Bound Program at ASU West Campus
Mentoring and Instructional Packages	
AskanAnthropologist.org toolkits for K-12 educators	McClintock High School mentorship award
Complexities of Ecological and Social Diversity lesson plans (grades 4 and 5). https://geoalliance.asu.edu/BarkerHohokam	With "U.N.I.T.E. for the Environment" training teachers in conservation education in 14 primary schools around Kibale National Park, Uganda.
"Science of Friendship" curriculum in partnership with Santa Fe Institute. Implemented in Santa Fe, NM science clubs aimed at under-represented minorities in STEM	

7.6.4. Innovation Gallery (Formerly the Museum of Anthropology). In 2011, the Museum of Anthropology was re-organized as an experimental space for: (1) showcasing the scholarly and community-based activities of SHESC's faculty, staff, and students, and (2) training Museum Studies students in envisioning and developing exhibits. To capture this change in focus, the space was renamed the Innovation Gallery (in 2015), and it was included in the general redesign of the School's front space to: create a new entrance that was a more open and inviting to the Gallery, diversify potential uses for the space (e.g., exhibitions, performances, events), increase visibility of the multi-purpose gallery, bring natural light into the space, install multipurpose lighting system and electrical system suitable for a wide range of activities.

The Gallery was closed during the renovation between 2017 and 2018, and the Gallery's first exhibition "Revisiting the Latin American Folk Art Collection," will open in August 2018. Prior to this, the exhibitions were supervised and created by the Director of Museum Studies, museum staff, and students in the Museum Studies program (unless otherwise stated) since the new Masters degree was created:

Innovation Gallery exhibits (2011-2017)

100th at 10th: **Celebrating 10 Years of Unearthing the Human Experience (2017)** celebrated the 10th anniversary of SHESC and featured 100 achievements by faculty, staff and students using a stackable movable puzzle format.

Supply and Demand: Hohokam Pottery Production highlighted Hohokam pottery and recent findings about its production and distribution based on the doctoral dissertation of an ASU alumna. (Created by the Pueblo Grande museum, with additional materials from the Alameda Repository) (2017).

Speaking for the Dead: Exploring Forensic Anthropology explored forensic anthropology through a case study of migrant deaths at Arizona's border crossings, presented through the lens of anthropologists and local artists (2015-2016).

City Life: Experiencing the World of Teotihuacan, based mainly on the work of emeritus Professor George Cowgill, focused on the daily life of ordinary people at Teotihuacan and the historic, cultural and social dynamics that shaped this major urban civilization (2013-2014).

Looking for the Future in the Past: Archaeology's Long-Term View presented the work of ASU archaeologists and their collaborators, showing the importance of taking a long-term view when making complex decisions about contemporary social issues (2013-2014).

Choosing the Good examined how people make ethical choices in diverse cultures in the United States, Bangladesh, Fiji, Bolivia, China and Iceland. The exhibit featured a series of interactive devices to challenge visitors to consider what they would do in similar situations (2012).

Digging Arizona celebrated the Arizona Statehood Centennial and the 50th anniversary of the ASU Department of Anthropology, the School presented 140 years of anthropological research in Arizona and the Southwest (2012).

Choosing a Future with Water: Lessons from the Hohokam took a long-term view of resilience in the Phoenix valley and the challenges of the desert water supply. The exhibition was presented in conjunction with the second international science and policy conference "Resilience 2011," and has travelled to Tempe History Museum, Pueblo Grande Museum, Chandler History Museum, and SHESC's Deer Valley Rock Art Center (2011).

Alternative, examined the Euro-American perception of Native American identity, combining video performance, traditional printmaking, handmade book forms, sculptures, paintings, and 19th century photo techniques (2011).

Becoming Human: 30 Years of Research and Discovery was part of a year-long celebration of ASU's Institute of Human Origins' 30th anniversary. It featured the research work of the Institute's faculty and students (2011).

7.6.5. Deer Valley Petroglyph Preserve (formerly Deer Valley Rock Art Center). The Deer Valley Petroglyph Preserve is an archaeology museum and 47-acre Sonoran Desert preserve, home to the largest concentration of Native American petroglyphs in the Phoenix area. It opened in 1994 as the Deer Valley Rock Art Center, the name was changed in 2014 when it became a part of the Center for Archaeology and Society. For over 20 years it has operated as an educational and interpretative center some 30 miles from the Tempe Campus. The building—from which a small number of staff interpreted the site, housed exhibits, and ran educational programs and activities—is located in a building designed by renowned local architect Will Bruder. With little in the way of maintenance over the years, the building was closed from June, 2016, and re-opened to the public late-October, 2017 after extensive repair work was completed. During the closure staff members were relocated to the Alameda Repository where they continued to offer educational programs and events. Since reopening through April 2018, the Preserve has welcomed over 6,500 visitors, which is a modest monthly increase over the same period in earlier years.

The Preserve will now operate as part of SHESC's Museums and Museum Studies program. It will continue to interpret the Preserve through exhibits and educational programs. A dedicated staff member is responsible for the Preserve's day-to-day operations and the implementation of public programs, events, and interpretive materials, designed to provide a rich experience to all visitors. The preserve's permanent exhibition is called "Leaving Marks: The Rock Art and Archaeology of Deer Valley" and offers a basic introduction to rock art and the site. The following exhibitions were supervised and created by the Director of Museum Studies, museum staff, and students in the Museum Studies program (unless otherwise stated):

Exhibits at Deer Valley Rock Art Center/Deer Valley Petroglyph Preserve

One World, Many Voices: The Artistry of Canyon Records. Through masterful portrait photography, Robert Doyle brings alive the history of Canyon Records, one of the oldest independent record labels in the music industry, while showcasing the musical heritage of Native American artists (originally created by a Museum Studies Certificate student for Pueblo Grande Museum) (2017-2018).

Fragments: Piecing Together Southwest Archaeology examined how archaeologists use sherds to reconstruct the past and present possible cultural and social experiences of the people who created them (displayed artifacts from SHESC Repository, curated and managed by the Curator of Collections)(2016).

Pieces of the Puzzle: New Perspectives on the Hohokam provided an overview of the Hohokam world and examined why more than 40,000 people lived in the Hohokam region around A.D. 1300, yet fewer than 10,000 were present only 200 years later (on loan from Archaeology Southwest, Tucson) (2015-2016).

Deer Valley Petroglyph Preserve 20 Year Anniversary—Connecting Past and Present chronicled the creation of the preserve, formerly the Deer Valley Rock Art Center, in 1994 and subsequent development. A component of the exhibit included a compilation of videos from documentaries, news coverage, and the facility's own recording of events.

Agave Research Exhibit. An outside research exhibit that quantified the effects of agave rock piles through a long-term study of soil temperature and agave growth (Created by a PhD student in Archaeology and the Museum Studies Certificate) (2012-2016).

Changing Landscapes: A Closer Look at Baby Canyon Pueblo. Based on the research findings of a partnership between the Bureau of Land Management and Deer Valley Rock Art Center (Designed by PhD student in Archaeology and Museum Studies Certificate student) (2012).

7.7. Professional Development

As reflected in the program's 100% success in faculty rank promotions forwarded for Dean's consideration, SHESC places a premium on mentoring and guidance for its faculty, particularly its junior faculty. All junior faculty are provided with a 3-person mentoring committee of tenured faculty to help them navigate through both SHESC and the tenure process. Meetings with the committee are expected at least annually, but committee members are available at any time to provide support and/or help advocate on the junior faculty member's behalf. Similarly, annual meetings are held between junior faculty and the SHESC Director with the specific goals of addressing any concerns of the junior faculty member and to both evaluate, and provide specific advice, on the individual's progress towards tenure. During some years, when the tenure-track cohort is large, meetings are organized by the Director to bring in

tenured faculty to discuss specific aspects of the tenure package and answer any questions. Additionally, all junior faculty are encouraged to participate in the various tenure workshops provided by CLAS, ASU, and the Faculty Women's Association.

Annually, the Director now meets with Associate Professors in one-on-one mentoring sessions. The unit provides examples of successful promotion materials and encourages associates to attend College and University workshops. Finally, senior faculty who have served on promotion committees also offer one-on-one coaching for associates developing their promotion materials.

With recent increases in the number of postdoctoral fellows supervised at SHESC, the School appointed a faculty member as postdoctoral coordinator in 2014 to serve as a single point of contact for SHESC's diverse and dispersed postdoctoral researchers and non-tenure-track faculty members. The coordinator assists postdoctoral scholars with development of employment portfolios, helps arrange practice job talks, and is available for one-on-one general career planning and mentoring upon request. There is a website that provides examples of individual development plans, application materials of past early career SHESC job applications, and resources from funding agencies

7.8. Challenges and Strategic Directions

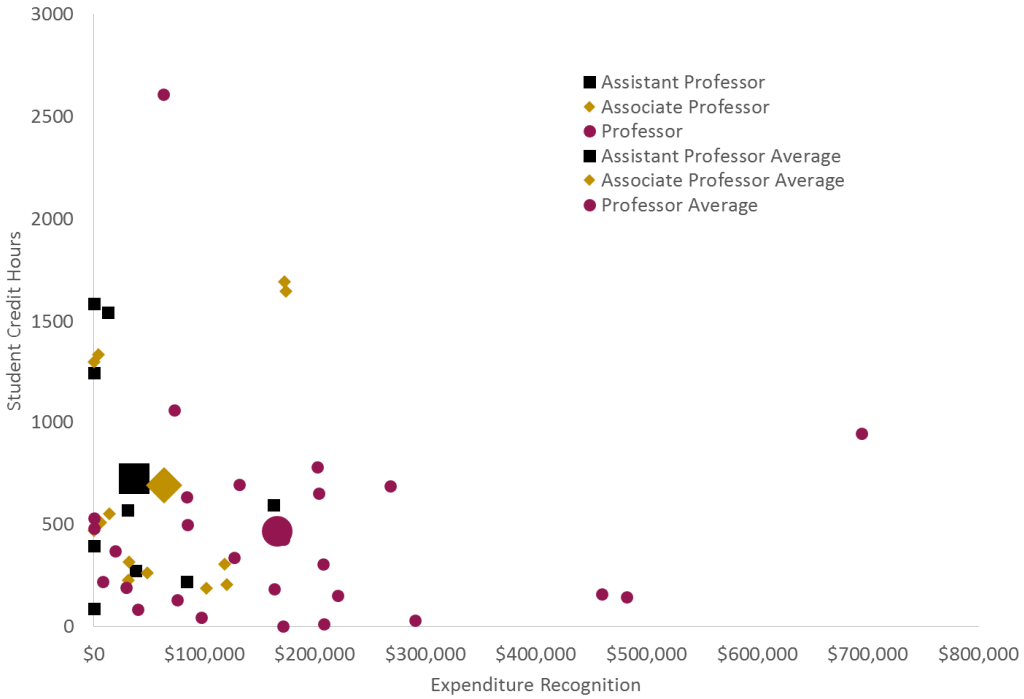
While making great strides in the last seven years, SHESC also faces a number of challenges as it grows and increases in complexity. These include increasing faculty diversity, maintaining balance in faculty commitments to research and teaching, and sustaining already high levels of research productivity. We also discuss a new and uncertain opportunity that will arise in 2020 when a substantial section of the faculty (faculty in the Institute of Human Origins and the Evolutionary Anthropology program) move to new offices and labs in a relatively distant part of campus.

7.8.1. Increasing faculty diversity. SHESC strives for a diverse community. The proportion of women on the SHESC faculty has been relatively stable over the study period, ranging from 40-44%. This proportion exceeds the College's 27%, but is still not at parity. Moreover, despite steady growth in minority faculty (0% in 2005 to 10% today), SHESC is well below the College-wide 25%. To address this issue proactively, SHESC created a Diversity Task Force in 2016 to conduct thorough diversity self-assessment including strategies to increase diverse faculty recruitment, support, and retention. Recommendations include identifying minority applicants during faculty searches through self-identification of the applicants and a request to the Dean's office to determine minority status via the applicant questionnaires; this taskforce recommendation has become standard procedure in SHESC searches. In addition, the taskforce has recommended advertising via minority professional networks; this recommendation has also become standard procedure for SHESC hiring. Finally, SHESC has begun to work actively with the Dean's office to identify opportunities for targeted diversity hires.

In addition to SHESC'S Diversity Taskforce, SHESC faculty have been involved with university initiatives aimed at improving diverse faculty recruitment and retention. As an example, a recently funded $3M NSF ADVANCE project will enable development and evaluation of strategies to increase representation of underrepresented groups in the professoriate and in university leadership positions. In this way, it responds to ASU's charter to consider equity and inclusion in every decision that affects faculty. To carry out this institutional transformation, ASU ADVANCE will: *Initiative 1*: Ensure that faculty and administrator procedures on recruiting, promotion, evaluation, and retention explicitly address how to improve equity and diversity in an interdisciplinary structure. *Initiative 2*: Provide appropriate and accessible professional development and mentoring opportunities for STEM women and members of underrepresented groups across the entire academic life course. *Initiative 3*: Design, implement, and evaluate digital administrative systems to monitor equity-related processes, and empower administrators to intervene to ensure equitable opportunities and outcomes. In this way, ASU ADVANCE will take a life course approach to support professors from the beginning of the career, into the middle, and through to the end. It bases this on a model of faculty experiences as shaped by gender, race, ethnicity, foreign-born status, sexual orientation, disability, rank, and discipline, with the assumption that these experiences intersect to influence opportunities for career advancement and leadership opportunities. SHESC is engaged in the leadership of this proposal, especially the social science research plan and the evaluation of outcomes. It will participate as an academic unit.

7.8.2. Balancing faculty efforts in teaching and research. The transdisciplinary nature of SHESC includes a unique blend of scholars with highly variable research agendas. In recognition, SHESC allows for a slight modification to the workload effort for extremely research-productive faculty where the standard 40% research, 40% instruction, 20% service workload can be shifted to 50% research and 30% instruction. Even with this modification, there is no evidence to indicate that volume of research (measured by annual research expenditures) is inversely correlated with teaching effort (measured by annual student credit hours, SCH, Figure 7.8.2, averaged over 2015-2017). For example, despite some variance, the full professor with the highest research expenditures also has the 3rd highest SCH for rank, and the two associate professors with the highest expenditures also have the highest SCH for rank. The only potential pattern is that, on average by number of faculty at rank, assistant and associate professors tend to have higher SCH averages than full professors, while full professors have significantly higher average research expenditures.

Figure 7.8.2. SHESC faculty student credit hours versus research expenditures. Values represent the yearly average over calendar years 2015, 2016, and 2017.

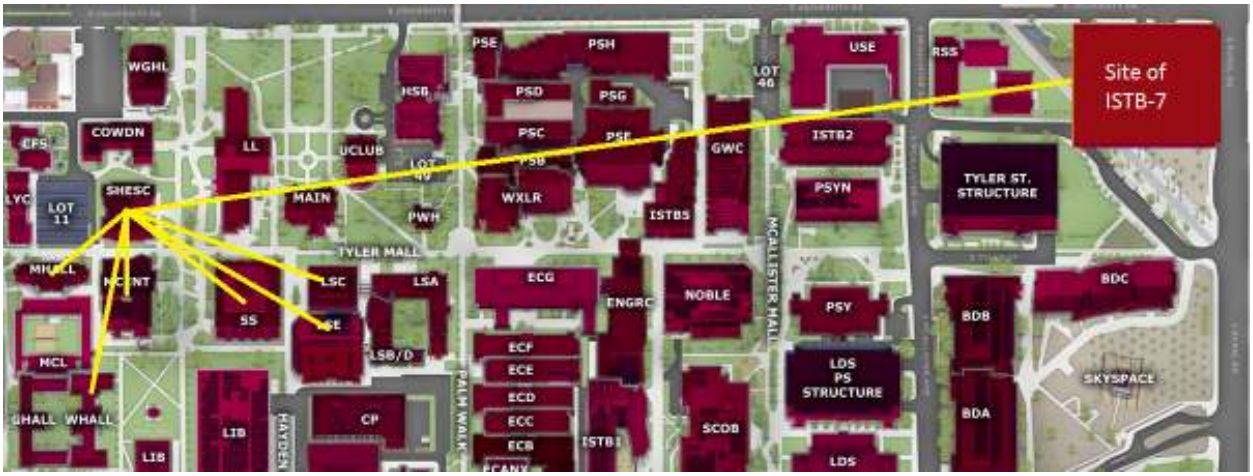


7.8.3. Sustaining high levels of research productivity. Since its founding in 2005, SHESC has steadily grown in annual research expenditures—a key University measure of productivity. However, one leading indicator of future expenditures suggests further investments may be necessary to sustain such high levels of faculty productivity. Specifically, after a doubling of proposal amounts in 2013-2014 ($15.2M to $32.3M), proposal amounts have steadily declined to reach their lowest point in 7 years ($13.5M). This trend likely reflects synchronous funding cycles set in motion in 2013-2014 by the end of Late Lessons from Early History initiative funding as well as increasing administrative demand for external funding. The subsequent increase in grant submissions resulted in a large, coordinated influx of grant awards that led many SHESC investigators to shift effort to completing active projects rather than applying for new ones. Indeed, during this time there was a decline in proposals as expenditures increased.

A new wave of recently funded large grants involving SHESC faculty (NSF, USDA, NIH, NIJ) will replenish these declines to some extent, and faculty are actively planning new large projects based on core strengths in data synthesis in the social sciences, monitoring and evaluation in international development, and human health and disease. However, such large fluctuations in proposal amounts suggests that the concerted move to larger, high-risk collaborative grants also may be leaving the unit open to substantial fluctuations in the future. Identifying mechanisms and strategies to mitigate such large fluctuations will be important for

maintaining sustainable growth into the future. Key directions will likely include diversifying beyond our traditional strengths in NSF funding to other agencies and foundations (USAID, USDA, Templeton, NIH, NIJ) that fund research aligning with our core strengths and interests.

Figure 7.8.4. Location of new ISTB-7 building relative to other SHESC locations



7.8.4. Managing a spatially distributed school. To some extent, SHESC has always been forced to manage spatially distributed offices and labs (Figure 7.8.4), several with insufficient or out-of-date facilities. However, in 2020, a substantial portion of the faculty—from the Institute of Human Origins and SHESC's evolutionary anthropology faculty who are IHO Research Affiliates—is slated to move offices and labs to a new interdisciplinary building (ISTB-7). The new location provides desperately needed laboratory space and presents novel opportunities for new partnerships and research collaborations with other units including the Solutions Lab, the Global Futures Initiative, the Global Institute of Sustainability. For the first time since IHO moved to ASU over 20 years ago, the move will also provide IHO-affiliated faculty an integrated space for formulating and pursuing new transdisciplinary projects.

The move will present opportunities and challenges for integration across SHESC. Specifically, while maintaining administrative integration, the move will increase the physical distance (from a 3-min to a 15-min walk) between a substantial portion of the faculty and SHESC's other locations. The increased distance may pose challenges for faculty interaction, but it also presents a novel opportunity to revisit in very explicit terms how we maintain a cohesive, highly collaborative unit. The School's directorate, executive committee, faculty and staff are aware of the situation and are actively developing strategies to encourage regular interaction among faculty in the unit. These efforts will include carefully planning and incentivizing participation at lectures, meetings, and other events in a way that brings together faculty, staff, graduate students, and postdocs from both locations on a regular basis.

7.8.5. Faculty hires. Over the past seven years, the School has seen the most dramatic growth in faculty with evolutionary expertise—7 of those hires in the "Origins of Human Uniqueness" initiative, 2 hires in the Center for Evolutionary Medicine, and 1 in the Sociocultural approach. These have served to bolster the School's position as a leader in social and cultural evolution, primatology, and evolutionary medicine. The School has also hired four new faculty in Archaeology (and has an open search this year) which has crucially reinforced intellectual leadership in Southwestern and Mesoamerican in a phase of senior faculty retirements.

One of our most pressing challenges is maintaining a critical mass of faculty in key but underrepresented programs, such as Bioarchaeology and Environmental Social Science. Bioarchaeology, which is the longest running program of its kinds in the world, has only four primary faculty which has placed severe strains on graduate mentoring and undergraduate teaching commitments. Environmental Social Science, a problem-oriented approach that plays an important bridging role in the School, now has only four primary faculty (with one in a high-level university leadership role and a second with a split appointment in the School of Sustainability). This situation is due to recent retirements and the fact that there has not been a hire into the approach since 2011. It has also created severe strains in efforts to support students in the Environmental Social Science PhD program.

A second pressing challenge is building a Global Health faculty that can support the massive growth in undergraduate demand for Global Health degrees over the past seven years. There have only been two open hires explicitly made to support the global health program, and these predate the last review and the massive increase in global health enrollments. Currently, ~40% of SHESC majors, minors and honors students are in Global Health, and Global Health faculty have supervised more than 50% of all SHESC's honors theses in the last 7 years. However, the approach includes only ~20% of the tenured and tenure-track faculty (eight primary and two secondary). Although the faculty covers many key subfields—epidemiology, health policy, behavioral and social sciences—and content domains—maternal and child health, infectious diseases, chronic diseases—it also struggles to meet student needs in other areas, such as intervention science and mental health.

The faculty hiring plan (Table 7.8.5a) aims to address these challenges while also fulfilling existing commitments to one additional hire for the "Origins of Human Uniqueness" initiative.

Table 7.8.5a Faculty Hiring Plan, 2018-22

2018 for 2019. 1 junior appointment in archaeology of human diaspora (rebuilding archaeology)
2019 for 2020. 2 junior appointment in Environmental Social Sciences (rebuilding ESS degree), 1 junior appointment in bioarchaeology (rebuilding BA program), 1 junior appointment in global mental health (enrollment)
2020 for 2021. 1 junior appointment related to the origins of human uniqueness (obligated), 1 junior appointment in Environmental Social Sciences (rebuilding ESS degree), 1 in paleoanthropology (rebuilding biological anthropology)
2021 for 2022. 2 junior appointment in global health (enrollment), and 1 junior appointment in ESS that can support enrollment growth in Global Health (rebuilding ESS and enrollment growth).

7.8.6. Evaluating the future of museum studies program. The Museum Studies program was founded in 1978 and re-organized in 1988, offering an MA in Museum Anthropology and a Graduate Certificate in Museum Studies. During its first 25 years, the program awarded only a modest number of degrees, fewer than 60 MAs in total. In 2011, following the appointment of the Director of Museums and Museum Studies, the Masters in Museum Anthropology was replaced by a Masters in Museum Studies, with its first students graduating in 2013. The aim was to create a new interdisciplinary MA in Museum Studies to draw students from a wider range of disciplines. Students, since then, have joined the program with interests in anthropology, history, art history, design, education, and interdisciplinary studies. It has graduated 33 MA students in the last five years, and has continued to offer its Certificate in Museum Studies, which is usually taken by students pursuing graduate degrees in other disciplines. In total, the program has graduated 47 students in six years.

Since the last self-study, the program has grown, but not at the rate hoped for in large part because of the lack of faculty to offer courses. One course, ASB 572 Exhibit Design and Development was taught annually by an Academic Associate, who also directed the Anthropology museum, until her retirement in 2014. An Exhibit Coordinator was hired in 2015, but does not teach. The Exhibit Design and Development course was subsequently taught by the DMMS. One course in Collections Management was offered every two years by the Curator of Collections. All other museum studies courses were taught by the DMMS (an unsustainable load). Starting in the fall of 2015, because of the teaching load on the DMMS, the program admitted students every two years to the MA program and annually to the Certificate. There was a substantial drop in applicants in 2015 and 2016 and the program reverted to annual recruitment in 2016, but did not come close to reaching the application goal of approximately 30 students annually.

The current Curator of Collections retired in June 2018 and her replacement will not teach Collections Management. Moreover, the DMMS will be changing to a half-time position,

which will make it impossible to provide the current courses required for the MA without new SHESC-funded hires. In light of these challenges, it is important to reference a recent study of 184 U.S. museum studies programs contracted by the University of Washington (Stein & Jones 2018). Key findings were that there is declining enrollments in existing degrees, that alumni do not see degrees contributing to career advancement, and that demand is greater for continuing education formats where individuals working in museum contexts can gain ongoing professional training. For these reasons, SHESC is evaluating the desirability and feasibility of continuing the Museum Studies degree and certificate programs.

References

Stein J & Jones MC (2018). Museology program landscape study.

Table 7.9. SHESC Faculty Profile

Table Prof = Professor, Asst Prof = Assistant Professor, Assoc Prof = Associate Professor, Rsch Prof = Research Professor, Rsch Scient = Rsch Scientist, Assoc Acad Prof = Associate Academic Profession, Dir = Project Director. Arch = Archaeology, BA = Bioarchaeology, EA = Evolutionary Anthropology, SC = Sociocultural, ESS = Environmental Social Science, GH = Global Health, AMLSS = Applied Math in the Life and Social Sciences. Funding in Fall 2016-Spring 2018. NIH = National Institutes of Health, NIJ = National Institutes of Justic, NPS = National Parks Service, NSF = U.S. National Science Foundation, NGS = National Geographic Society, NEH = National Endowment for the Humanities, JTF = John Templeton Foundation, BLM =Bureau of Land Management, AWM = Andrew W. Mellon Foundation.

Name	Title/Rank	Approach	Highest Degree		Expertise	Instruction (2017-2018 AY)	Funders (2016-2018)
Abbott, David	Assoc Prof	Arch	PhD	1994	Model the ancient exchange and social networks of the Hohokam regional system.	ASM365: Doing Archaeology ASM465: Quantitative Analysis for Anthropologists	NEH BLM
Anderies, John	Prof	ESS	PhD	1998	How ecological, behavioral, social, and institutional factors affect the robustness/vulnerability of social-ecological systems	AML/SOS591: Dynamic Modeling in Social and Ecological Systems ASB/SOS394. An introduction to Complexity Science	NSF
Baker, Brenda	Assoc Prof	BA	PhD	1992	Bioarchaeology in North America, Egypt, Sudan (Nubia), and Cyprus; mortuary practices and skeletal indicators of activity and disease.	ASM591: Nubian Bioarchaeology ASB484, Internship ASB301: Global History of Health	Qatar-Sudan Arch Project, Private donor
Barton, Michael	Prof	Arch	PhD	1987	Long-term dynamics of socioecological systems, complex systems science, geoarchaeology of Quaternary landscapes, Old World and North American prehistory	ASM,BIO,SOS570: Fundamentals of Complex System Science ASM548/494: Geoarchaeology ASM300: Anthropological Science Seminar	NSF
Bernard, H. Russell	Rsch Prof	SC	PhD	1968	Technology and social change; language death; social network analysis	Director, Institute for Social Science Research	NSF
Bolin, Bob	Prof	ESS	PhD	1976	Political ecology, hazards and disasters, environmental history, environmental justice	ASB335: Ancient Ruins of the Southwest (on-line), ESS502: Political Ecology	
Boone, Christopher	Prof	ESS	PhD	1994	Urban sustainability; environmental justice; vulnerability; urbanization and global environmental change	Dean, School of Sustainability	NSF
Boyd, Robert	Prof	EA	PhD	1975	Human evolution	ASB 246: The Evolution of Technology ASB 246: Models of Social Evolution	JTF
Brewis (Slade), Alexandra	Prof	SC	PhD	1992	Culture, health, and human biology; stigma; weight/obesity; water and food insecurity	leave	NIH USAID

Buikstra, Jane	Prof	BA	PhD	1972	Bioarchaeology, paleopathology, forensic anthropology and paleodemography	leave	NSF NIJ NEH
Burnsilver, Shauna	Assoc Prof	ESS	PhD	2008	Environmental, ecological and economic anthropology; social networks, well-being, sense of place resilience; vulnerability; cooperation; food sharing;	ASB/SOS 375: Humans and the Environment ASB 484: Internship SOS 596: Capstone ASB 300: Food and Culture	
Campisano, Christopher	Assoc Prof	EA	PhD	2007	Geological context and chronology of fossil sites, paleoanthropology, paleoecology, scientific drilling (east Africa, India, US)	ASM 591: Cenozoic Climate and Primate Evolution ASB 484: Internship semester leave	NSF JTF Leakey Foundation
Castillo-Chavez, Carlos	Prof	AM LSS	PhD	1984	environmental and social landscapes on dynamics of addiction, disease evolution and dispersal; dynamics of complex systems in ecology, epidemiology and social sciences	leave	NSF DoED NSA
Estrada, Emir	Asst Prof	SC	PhD	2012	Migration and incorporation of immigrants from Latin America.	AFS/ASB 202: Immigration and Ethnic Relations in the U.S. ASB 591: Immigration to the U.S.	
Gaughan, Monica	Assoc Prof	GH	PhD	1999	Science policy, scientific diversification and migration	ASB 452: Community Partnerships in Global Health ASB 484: Internship ASB 376: Global Health Policy ASB 493: Honors Thesis	NSF
Gilby, Ian	Asst Prof	EA	PhD	2004	primate behavioral ecology, evolution of cooperation	ASM 443/543, Primatology ASB 484: Internship ASM 104: Bones, Stones and Human Evolution	NSF JTF Leakey Foundation
Hegmon, Michelle	Prof	Arch	PhD	1990	Archaeology of the human experience and social theory (US Southwest)	sabbatical	NEH
Hill, Kim	Prof	EA	PhD	1983	Evolutionary anthropology, life history theory, foraging, cooperation, hunter-gatherers	ASB 101: Understanding Human Diversity ASB 484: Internship ASB 368: Modern Hunter Gatherers	JTF
Hinde, Katie	Assoc Prof	GH	PhD	2008	Maternal and child health, lactation biology, biobehavioral fevelopment	ASM 104: Bones, Stones and Human Evolution ASB 210: Human Sexuality ASB 493: Honors Thesis	NSF
Hruschka, Daniel	Prof	GH	PhD	2006	Medical Anthropology, Epidemiology	ASB 462 Medical Anthropology ASB 484: Internship ASB 357 Society, Drugs and Health ASB 493: Honors Thesis	NSF NIH

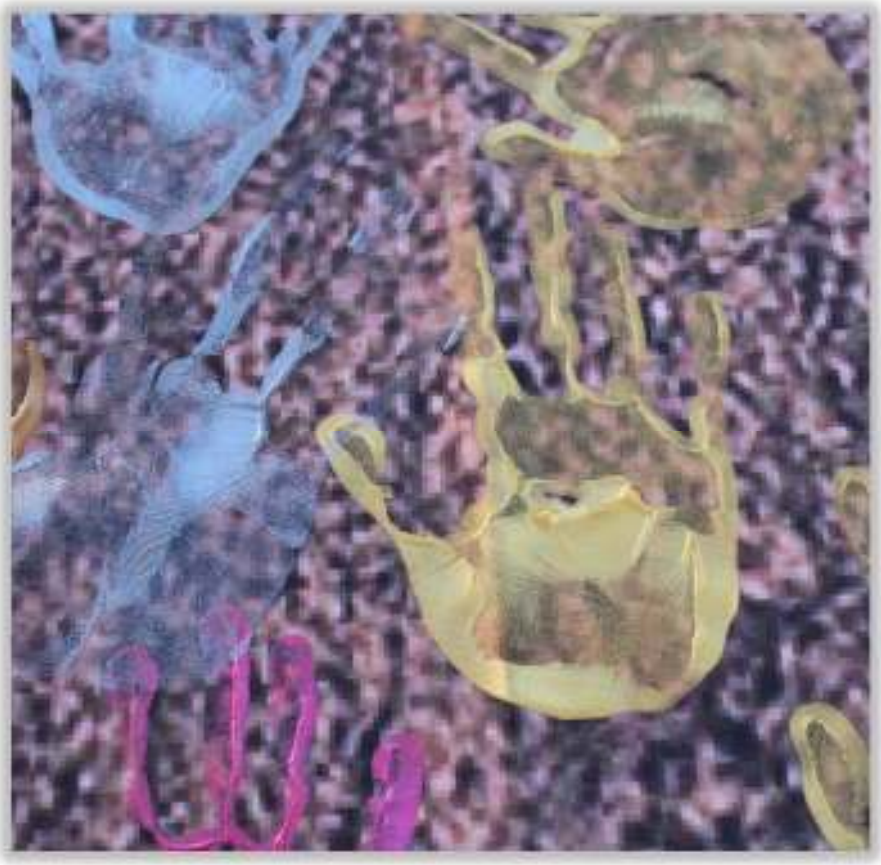
Hurtado, Ana Magdalena	Prof	GH	PhD	1985	Niche construction and evolution of global health phenomena and interventions in humans, from early hominins to the present	ASM 300: Anthropological Sciences Seminar ASB 493: Honors Thesis ASM 401: Health and Human Biology	Yale
Jehn, Megan	Assoc Prof	GH	PhD	2004	Vaccine attitudes and policies, social media and health communication, adolescent health and risk behaviors, burden of non-communicable diseases in low- and middle-income countries	ASM 201: Epidemics and Outbreaks ASB 484: Internship ASB 100: Intro to Global Health x 2 ASB 493: Honors Thesis	
Johanson, Donald	Prof	EA	PhD	1974	Human origins, particularly australopithecines	EdX: Human Origins 246	JTF
Jonsson, Hjorleifur	Prof	SC	PhD	1996	Anthropological theory, Southeast Asia, Politics, Sports, Ethnicity, Ethnography.	ASB252: Sports and Culture ASB412: History of Anthropology ASB 493: Honors Thesis	
Kimbel, William	Prof	EA	PhD	1986	Paleoanthropology	ASM 344: Fossil Hominids semester leave	NSF JTF
Kintigh, Keith	Prof	Arch	PhD	1982	Southwest US Archaeology, resilience, political and social organization, synthesis and data integration, digital archiving, quantitative methods	In phased retirement	NSF NEH AWM
Knudson, Kelly	Prof	BA	PhD	2004	bioarchaeology and archaeological chemistry	ASB 353: Death and Dying in Cross-Cultural Perspective X 2 ASB 484: Internship ASM 591: The Bioarchaeology of Identity	NSF NGS NIJ
Lampert, Adam	Asst Prof	AML SS	PhD	2012	Environmental management by multiple agents	AML 253: Introduction to mathematical tools and modeling AML 494 / AML 591 / SOS 591: Modeling with game theory	
Langergraber, Kevin	Assoc Prof	EA	PhD	2007	primatology, genetics, chimpanzees	ASM BIO 446/546 ASB 101	Nacey Maggioncalda Foundation NIH
Marean, Curtis	Prof	Arch	PhD	1990	human origins	ASB 368: Hunter-gatherers ASB 484: Internship ASB 222: Buried Cities and Lost Tribes ASB 493: Honors Thesis	Hyde Family Foundation XSEDE Grant NSF JTF

Marsteller, Sara	Lecturer	BA	PhD	2015	Social identities and sociopolitical change in the Central Andes using techniques from human osteology, archaeological chemistry, and mortuary archaeology	ASB 301: Global History of Health ASB 462: Medical Anthropology ASB 394: Myth Busters ASB 102 Intro to Cultural Anthropology ASB 333: Frauds, Myths and Mysteries ASB 452/SSH 402: Community Partnerships for Global Health	
Mathew, Sarah	Asst Prof	EA	PhD	2011	Why humans cooperate in groups comprising large numbers of genetically unrelated individuals, and how this is tied to the origins of moral sentiments, cultural norms, and warfare.	ASB 210 leave	JTF Carnegie
Maupin, Jonathan	Assoc Prof	GH	PhD	2006	Medical Anthropology / Guatemala	ASB 100: Intro to Global Health x 3 ASB 355: Trad. Medicine and Healing ASB 484: Internship ASB 493: Honors Thesis ASB 503 Medical Anthropology	
Michelaki, Kostalena	Assoc Prof	Arch	PhD	1999	Archaeology	ASB 484: Internship ASB 300 Food and Culture ASB 493: Honors Thesis	NSF
Morehart, Christopher	Assoc Prof	Arch	PhD	2010	Historical ecology, ethnobotany, complex societies, Mesoamerican archaeology	ASB 223: Aztecs, Incas and Mayas LIA 194: Special Topics ASB 484: Internship ASB 362: People and Plants	NSF
Morgan, Thomas	Asst Prof	EA	PhD	2013	Evolution of cognition and culture; teaching, language, intelligence, prestige, technology, norms	ASM 104: Bones, Stones and Human Evolution ASM 494/594: Bayesian Statistics	DARPA NSF
Mubayi, Anuj	Asst Prof	AM LSS	PhD	2008	mathematical and computational modeling of problems of interest to the public health or social sciences communities	ASB 394: Special Topics AML 406: Research in the Life and Social Sciences ASB 484: Internship ASB 493: Honors Thesis ASB 610: Topics in Applied Math in the Life and Social Sciences	NSF
Nelson, Ben	Prof	Arch	PhD	1980	Archaeology of social complexity, frontier dynamics, long-distance exchange, socionatural change	ASB 337: Pyramids and Hieroglyphsx2 ASB 484: Internship ASB 493: Honors Thesis	NSF private donor
Nelson, Margaret C	Prof	Arch	PhD	1981	Resilience, vulnerability, US Southwest	Vice Dean, Barrett Honors College HON394: Barrett Fellows	NSF CUNY
Palka, Joel	Assoc Prof	Arch	PhD	1995	Mesoamerica	Joined in Fall 2018	
Paul, Kathleen	Instructor	BA	PhD	2017	Quantitative Genetics and Dental Anthropology (Dental Morphology)	Joined in Fall 2018	NSF
Peeples, Matthew	Asst Prof	Arch	PhD	2011	Social networks in archaeology, quantitative and formal methods for social sciences, Southwestern archaeology, ceramic analysis	ASB 335: Ancient Ruins of the Southwest ASB 484: Internship ASM 565: Quantitative and Formal Methods in Archaeology	NSF, NPS

Perreault, Charles	Asst Prof	Arch	PhD	2011	Paleolithic occupation of Tibet, Mongolia; Cultural Evolution	ASB 222 - Buried Cities and Lost Tribes Semester leave	
Pierce-McManamon, Frank	Rsch Prof	Arch	PhD	1984	Cultural Resource and Cultural Heritage Management; Public Archaeology; discoverability, accessibility, use-reuse, and preservation of archaeological and cultural heritage data; CRM and historic preservation laws, regulations, and policies; public outreach; and professional education.		NEH, NSF, DoD AWM Bureau of Reclam.
Redman, Charles	Prof	Arch	PhD	1971	human impacts on environment, sustainable landscapes, rapidly urbanizing regions, urban ecology, environmental education, and public outreach	SOS 111/PUP 190: Sustainable Cities x 2	NSF Dept of Interior
Reed, Kaye	Prof	EA	PhD	1996	Community ecology of living and fossil primates, hominins and mammals; biogeography of Plio-Pleistocene mammals; paleoanthropology; paleoecology	ASM 591: Professionalism ASM 579: Proposal Writing	NSF JTF
Ruth, Alissa	Assoc Acad Prof, Dir	SC	PhD	2014	Social movements, immigration, education innovation	Director of Strategic Initiatives ASB 102: Intro to Cultural Anthropology hybrid ASB 102: Intro to Cultural Anthropology in person lecture	Cisco Fund
Schuster, Roseanne	Rsch Scient, Dir	GH	PhD	2016	Facility and community-based health systems in low-resource settings, monitoring and evaluation, maternal and child health, HIV/AIDS, sub-Saharan Africa		DIFD
Schwartz, Gary	Assoc Prof	EA	PhD	1997	Primate and human evolutionary developmental biology; human origins; dental development.	ASM 525: Primate Paleobiology ASB 484: Internship ASM 341: Human Osteology	JTF
Silk, Joan	Prof	EA	PhD	1981	Evolution of primate social behavior	ASM 579: Proposal Writing ASM 246: Human Origins	JTF
Smith, Michael	Prof	Arch	PhD	1983	Archaeology of complex urban societies in Mesoamerica, and comparative urbanism	ASB 490: The Earliest Cities ASB 484: Internship ASB 222: Buried Cities and Lost Tribes	NSF
Stojanowski, Christopher	Prof	BA	PhD	2001	bioarchaeology and microevolution	ASM 275: Forensic Anthropology x2 ASM 104: Bones, Stones and Human Evolution	NSF
Stone, Anne	Prof	EA	PhD	1996	Anthropological genetics	ASM 345: Disease and Human Evolution ASM 301: Peopling of the World ASB 484: Internship ASM/BIO 394: Evolutionary Medicine Guest Seminars	NSF NIJ

Stotts, Rhian	Lecturer	SC	PhD	2016	Cultural Anthropology, Environmental/Ecological Anthropology, Economic Anthropology, Sustainability, Water Scarcity and Solutions, Wastewater Reclamation and Reuse, Anthropological Methods, Teaching Technologies	ASB 191: First-Year Seminar ASB 305: Poverty and Global Health ASB 380: Ethics of Eating ASB 380: Language, Culture and Gender ASM 414: Urban and Environmental Health ASB 305: Poverty and Global Health ASB 455: Practicum for Social Sciences (Qualitative Research Methods)	NSF
SturtzSreetharan, Cindi	Assoc Prof	SC	PhD	2001	Linguistic Anthropology; gender; masculinity; obesity; stigma; global health; Japan	ASB 380 Language, Culture, and Gender ASB 484: Internship ASB 452 Research Practicum ASB 590 Language and Culture	
Sugiyama, Saburo	Rsch Prof	Arch	PhD	1995	Mesoamerica, especially Teotihuacan Archaeology	NA	NSF Japan Society for the Promotion of Science
Toon, Richard	Rsch Prof	SC	PhD	2003	Museum studies, learning in museum, cultural studies	ASB 579 Critical Issues in Museum Studies ASB 591 Learning in Museums ASB 591 Museums and New Media ASB 574 Exhibit Design and Development	NSF
Trumble, Benjamin	Asst Prof	GH	PhD	2012	Evolutionary Medicine, Reproductive Ecology, Chronic Disease of Aging	ASB 294/BIO 294 Evolutionary Medicine X 2 ASB 493: Honors Thesis	NIH/NIA; Illumina
Tsuda, Takeyuki (Gaku)	Prof	SC	PhD	1997	Immigration, race and ethnicity, diasporas, U.S., Brazil	ASB 541: Theory in Sociocultural Anthropology ASB 202: Immigration and Ethnic Relations in the US ASB 378: McGlobalization: Migration, Mass Media, McDonald's	
van der Leeuw, Sander	Prof	Arch	PhD	1976	archaeology, sustainability, complex systems, man-land relationships	SOS 591: Seminar	UK govt
Wiessner, Pauline	Prof	SC	PhD	1977	Social networks, warfare, ritual, restorative justice and anthropology of the night among Kalahari Bushmen and Enga	ASB 300: Food and Culture	

Wutich, Amber	Prof	SC	PhD	2006	Ecological, economic and biocultural Anthropology; institutions; environmental justice; water and food insecurity; global mental health; Latin America; Field Methods	ASB 500: Research Methods ASB 484: Internship ASB 305: Poverty and Global Health ASB 493: Honors Thesis	NSF USDA
York, Abigail	Assoc Prof	ESS	PhD	2005	Governance of environmental, urban, agricultural and social-ecological systems	ASB 394: Statistics for Social Sciences ASB 484: Internship ESS 513: Institutions	NSF



Section VIII

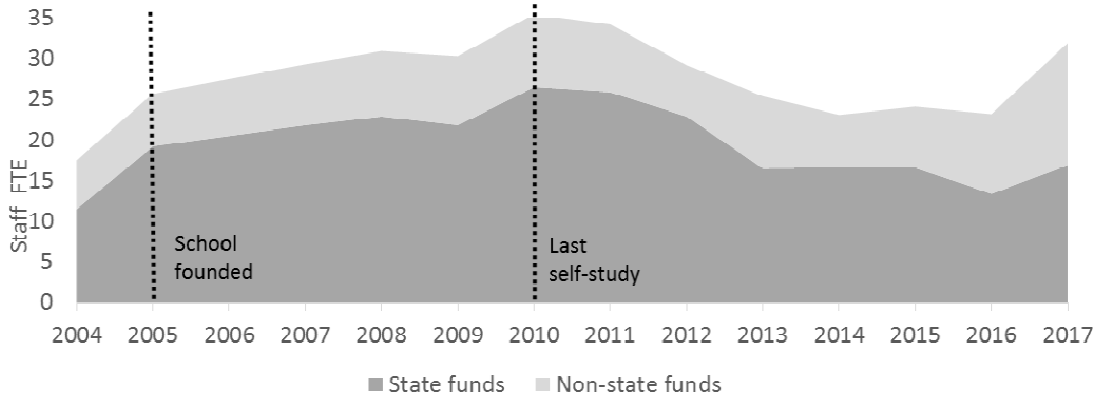
STAFF PROFILE

The School has a professional and collaborative staff whose duties fall into six major categories.

- **Administrative Services** manages our main office operations, facilities and events, in addition to supporting the directorate, faculty, staff and students (2 FTE). This staff includes an Assistant Director of Operations who oversees Business Services.
- **Business Services** manages the financial, human resources and research administration functions of the School (4 FTE).
- **Student and Academic Services** provides advising and other resources for our undergraduate and graduate students and is overseen by an Assistant Director of Student and Academic Services (5 FTE). Staff duties include professional student advising and program management (retention, assessments, marketing) and closely guiding the front office team in their student contact and scheduling roles.
- **Communications** (3 FTE) manages the school's branding, creative services, print and digital media, public relations, and outreach/development events.
- **Front Office & Facilities** manages the front office and SHESC facilities (2 FTE).
- **Public Engagement** supports activities at SHESC's Innovation Gallery (1 FTE) and Deer Valley Rock Art Center (2.5 FTE).
- **Support for Research Enterprises** including the Center for Global Health (1 FTE), postdocs, and additional externally-funded program staff.

This complex staffing situation is managed by the School's Director, the Assistant Director of Operations (overseeing Administrative and Business Services), and the Assistant Director of Student and Academic Services.

Figure 8.1a. Staff FTEs by funding source



Since 2011, our state-funded staff FTE has reduced substantially from 25.9 to 16.9 FTE (35% reduction) despite increases in enrollment and research activity. The largest drop occurred in 2013-2014 with the departure and non-replacement of staff totaling 6.4 FTE (mostly from support staff). In the last two years, SHESC has attempted to remedy shortfalls in advising and communications by increasing staff through non-state funding sources (Figure 8.2a).

Considerable staff turnover has also posed challenges in recent years. Reasons for turnover, include upward movement to other units at ASU and movement to non-academic positions with more competitive compensation.

After several years with limited in-house research advancement support (and rising research expenditures), the School recruited and hired a dedicated research advancement specialist involved in both pre-award and post-award management. However, the current FTE (1.0) is below what University guidelines recommend for the current load of 61 annual proposals and roughly 130 sponsored accounts—pre-award (1.0 FTE for 90 proposals) and post-award (1.0 FTE for 140 active accounts) Currently, the position assists with proposals during busy times but also serves as part of the business team as a post-award expert, tracking accounts and assisting the business team's production and troubleshooting load for research personnel and purchasing transactions.

Our top staff priorities are not in creating new positions, but consolidating and bolstering existing staff infrastructure and finding ways to retain staff.

Section IX

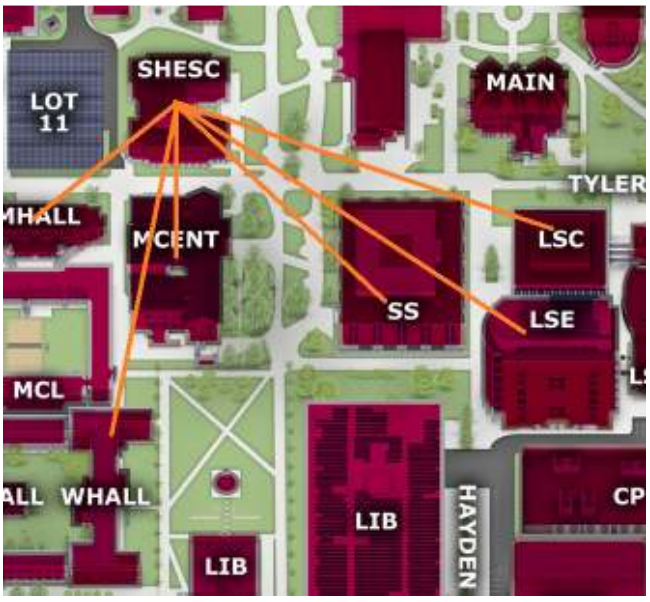
PROGRAM RESOURCES

This section documents the resources that support SHESC's current activities, including (1) space and facilities, (2) equipment and technology, (3) operations budget, and (4) collections and library resources. We also outline challenges to meeting the School's strategic goals.

9.1 Space and Facilities.

SHESC is housed across six different buildings with some consolidation of offices and labs around the intersection of Cady Mall and Tyler Mall (see map). In addition, a number of SHESC's collections have been moved and consolidated at the University's Alameda Building.

Building	**Functions**	**Sq. ft.**
SHESC	Administration, Offices, Labs	28,305
Matthews Center (MCENT)	Offices	16,125
Matthews Hall (MHALL)	Offices	2,207
Social Sciences Building (SS)	Institute of Human Origins	5,278
Life Sciences C and E (LSC,LSE)	Offices and Laboratories	na
West Hall	Offices	1,523
Alameda Building	Center for Archaeology and Society	6,528
Community Services Building	Collections Storage	11,711
Deer Valley Rock Art Center	Public Outreach	5,205



SHESC – School of Human Evolution and Social Change, SS – Social Sciences, LSC/LSE – Life Sciences C and E, MCENT – Matthews Center, MHALL – Matthews Hall, WHALL – West Hall

The School oversees slightly less space than it did at in 2011 (77,000 sq. ft. today compared to 78,000 sq. ft. in 2011). The front entrance of SHESC's main building as well as its main meeting room have been extensively remodeled to accommodate multiple activities—events, exhibits, meetings. A large part of this renovation involved opening up SHESC's entrance area to create a common area for students and faculty to gather informally as well as a site for public viewing of Innovation Gallery exhibits. Additional renovations include, reconfiguring SHESC's north third floor wing and Matthews Hall second floor to meet the needs of hires associated with the Origins inititative.

The School is planning to continue to increase external funding consistently over the short term, as a key capacity-building unit within the social sciences. This will put further demands on space. The College has helped somewhat with space solutions—mostly for the Boyd and Silk hire renovation, and some assistance with the new entrance and gallery space. However, an ongoing shortage of shared space for teaching and research assistants continues to be a concern although wireless internet and collaborative spaces have helped slightly.
The current floorplans are a major constraint since larger rooms make it impossible to meet ABOR standards for individual offices and hinder efforts to optimize labs and functional adjacencies.

Another major concern, particularly in the SHESC building is the risk management associated with a historic building with more than its share of deferred maintenance issues. A few times a year, there are major disruptions from this assortment of problems, often involving health concerns, down time and costly repairs and remediation. Other than ongoing challenges of asbestos, in the last five years in the SHESC building we have dealt with a plague of mosquitoes, a plague of bees, major roof leaks, major ground-level flooding, and mold. The fact that faculty offices, labs, collections and physical resources of the School extend across 11 sites (SHESC Building, West Hall, Matthews Center, Matthews Hall, Social Sciences Building, Community Services Building, Alameda Facility and our off-campus Deer Valley Rock Art Center and Teotihuacan Research Laboratory) and the various satellite faculty offices and labs noted below, does not appear to have hindered faculty networking, but there are concerns about how students and staff may be affected. It is clear that access to remote collections takes effort, as does keeping all these occupied areas secure and maintained. In an emergency, for example, the pandemic and emergency plans are mandated by academic unit, not by building, raising a number of logistical and communication concerns.

Finally, the failure to meet federal standards for climate control and security for our collections areas, although this has been on record as a concern for nearly 17 years, is possibly the most serious, immediate concern. Some of this has been addressed at the Alameda Facility, but it is far from ideal.

9.2 Equipment and Technology

By and large SHESC has the equipment it needs for faculty and staff to accomplish their mission. The University and the College provide some equipment funding through new faculty negotiated start-up packages, which often include expensive lab, field and computing items. The College also sponsors a high level of instructional technology and deskside computing support. The School is subsequently responsible for centralized server space, replacement of field and lab gear, lab fixtures and computers. Given the level at which our faculty and students work in the field and laboratories, this can mean a substantive and unpredictable ongoing investment.

Equipment relevant to specific classes or labs may be covered by course fees, but strict guidelines must be met for the expenditure of that income. The largest annual cost related to equipment and technology is the Netcom charges mandated per 1.6% of personnel, totaling approximately $170,000. This covers phones, wireless and wired connectivity, and basic technology assistance. Most of our ethernet connections are on 10mb lines since they were among the first to be installed on campus, but the campus standard is now 100mb. We have wireless connections for all buildings, which is what most faculty use for research. Upgrades would be cost prohibitive due to asbestos costs.

The School's inventory report shows equipment assets with a replacement value of $1,675,500 although the University does not assign a replacement cost to computers on the list. It is difficult to budget for this level of equipment replacement since we are not able to carry forward funds from year-to-year. Approximately $907K worth of new equipment was added to our School's inventory since January 2012, although the figure does not include computers that appear on that roster. Inventory items purchased in the past 7 years costing more than $10K each include two trucks, scanners, storage system, freezers and various research items. In 2016, we purchased a new Ford F-150 Truck with annual maintenance costs of $500.

9.3 Operations Budget

The School receives funds to support operations from three main sources: from the operating fund provided by the College, from RID (research incentive distribution; ~8-10% return on grant award overheads), and tuition residuals from summer teaching and online instruction during the academic year.

In 2018, our general operating budget is $274,870, which is roughly the same amount as the budget since the previous review (with no increase for inflation). Of this current operating budget, $25,000 is dedicated specifically for activities at Teotihuacan and is not available for other uses. When removing substantial NetCom and Risk Management payments we are required to make as a percentage of payroll (currently 1.6% and 1.2%), there is approximately $80,000 of discretionary funds in the operating budget to manage all aspects of the School.

In FY 2018, income from research incentive distributions (RID) was also approximately $80,000. This amount has been allocated to support faculty research. The third area of historical income has been from summer sessions and online instruction during the academic year. Because this was the mainstay of our discretionary funds, we have spent several years building a solid strategy of summer and online instruction. We received $592,290 in residuals in Summer 2017 and $1,119,333 in residuals from academic year 2017-2018 that could be used for general school purposes, including renovations and funding students. Finally, from study abroad instruction in the summer we have historically received residuals ranging from $100,000-150,000 per year. However, for FY2018 study abroad course maintenance has shifted to the Study Abroad Office and the School will only receive approximately $15,000.

Thus, for many related reasons, our available funds to support things such as faculty travel and research, student travel and research, purchases such as computers, furniture, and equipment, vehicle maintenance and replacement, programmatic development, lecture series, events, or awards, and anything else that comes up through the year, relies on income from online instruction. To financially support undergraduate participation in research apprenticeships and study abroad programs, our School aims to supplement these funds by actively pursuing outside donor support in building a student support endowment.

9.4 Collections

SHESC does not maintain its own library. It does, however, work closely with a dedicated librarian from the ASU system. SHESC and the Center for Archaeology and Society maintain extensive collections in archaeology, ethnology, and physical anthropology. These include both research collections and teaching collections, both of which are essential to the missions of SHESC. The collections include over 250,000 individual and bulk archaeological specimens, primarily from Arizona; over 220,000 specimens are currently on-line. In physical anthropology, 13,509 dental casts from 8,706 individuals are curated (ASU Dental Anthropology Collection). Human skeletal remains from a number of Southwestern archaeological sites are also curated by the department. Indexes to most of these collections are available on-line. A large collection of human skeletal remains from the early Christian Era Nubian site of Semna South, on the upper Nile River, Sudan is also curated by the department, as is the Ragsdale Pathology Collection (documented skeletal pathology cases). Type and comparative collections are also available in a variety of materials: ceramics, fauna, pollen, seeds, non-human primates, and fossil hominid casts. Ethnographic collections include specimens from the American Southwest, Latin America, and Southeast Asia-Laos. In addition, many faculty maintain individual research collections of artifacts, human remains, and/or related non-digital materials, all essential to their teaching and research activities. We cannot continue to properly curate and maintain good access to our extensive collections without sufficient dedicated staff.

Deer Valley Petroglyph Preserve, a petroglyph site is also considered a natural collection with artifacts housed and displayed in the site's museum. Holdings include: 1,571 petroglyphs on 579 boulders, a ground stone and chipped stone quarry, cobble hammerstones, shell and

bone artifacts, a single pithouse with 2 trash deposits and 10 cooking pits, an agricultural site, a possible canal segment, an earthen check dam, and several small stone masonry rooms.

Appendix A. Revisiting Goals set for the newly formed school in 2005

Goals set in 2005	**2017-2018**
Increase external research income to 4-5 $M	$6.4M
+15-17 new faculty	+7 T/TT since 2005.
80000 sq. ft. space	77000 sq. ft.
Institutional--SHESC	
Transform SHESC culture from 20th century discipline-based to one adapted to the New American University	Figure 7.7.3a
Strengthen core areas of sociocultural	√
Maintain strength in physical anthropology and archaeology	√
Improve integration of the anthropology subdisciplines	Figure 7.7.3a
Adapt organizational structure of the Department to the needs of the School	√
Teaching--SHESC	
Develop skills-driven curriculum that prepares students for the 21st century: critical thinking, knowledge acquisition, integrating fundamental and policy-relevant research skills	√
Reduce time to completion of various degrees	Retention and PhD time to degree
Substantially increase # of undergraduates who experience anthropology and other disciplines developed in the School	3-fold increase in majors
Develop innovative, discipline-based, transdisciplinary curricula and degrees	ESS, Global Heath
Integrated students more fully in the research process	Research Apprenticeships
Research--SHESC	
maintaining the strengths that have brought the unit recognition	√
enhancing individual as well as group-based, disciplinary and transdisciplinary research performance in the Unit	√
opening up new themes and areas of research, in particular where relative to the thematic foci of the School	√
Institutional--ASU	
improving links with anthropologists in other departments at ASU, through colloquia, collaborative research and teaching projects, collaborative submission of research proposals	√
improving links with other disciplines at ASU, by stimulating transdisciplinary discussions and collaborations (on our core themes amd other subjects), contributing to transdisciplinary research centers and institutes, making shared appointments between Schools	√
Teaching--ASU	
developing various kinds of transdisciplinary learning experiences involving other ASU Units at the undergraduate as well as the graduate level	ESS, Global Health, Intl Development*, PLuS Alliance
Research--ASU	
initiating and stimulating a wide range of transdisciplinary research initiatives together with other ASU units, both in fundamental and in policy-relevant research	√
extending the range of research domains in which anthropology and the other disciplines of the School play a role, through initiation of, and positive response to, relevant inter-Unit collaborations	√
helping develop the individual as well as the group-based, disciplinary and transdisciplinary research performance of the social sciences at ASU	√
positioning the School as a major, innovative, research force in the Valley, the state, the region and the country	√

improving the links with other academic and research institutions, in the Valley, the state, and the region, as well as nationally and internationally, through exchanges of students and faculty, collaborative research and any other useful means	√
enhancing the visibility of ASU social science worldwide	√

Appendix B. Centers, Research Initiatives and Laboratories

CENTERS

The Center for Archaeology and Society. The Center for Archaeology and Society. The Center for Archaeology and Society (established in 2014) is an archaeological research and outreach organization focused on using archaeology's unique access to the diversity of solutions developed by ancient Southwestern cultures to address enduring issues in the present. Employing both post-doctoral researchers and students, CAS works with ASU faculty and external researchers to develop and execute collaborative projects, with a special emphasis on those utilizing the extensive archaeological collections from the US Southwest housed at the Alameda Archaeological Repository, the facilities at the Deer Valley Petroglyph Preserve, and the data archives maintained by tDAR/Digital Antiquity. CAS currently includes two co-directors (Keith Kintigh and Matthew Peeples) as well as 19 research affiliates across SHESC, other divisions on campus at ASU, as well as external researchers from the local archaeological community. Each year, CAS initiatives focus on a small suite of themes within the broader scope of the Center's concerns. These themes attempt to link past and present through engagement with contemporary issues such as immigration and border crossings, the challenges of life in arid environments, and the relationships among demography and social and economic diversity.

In order to carry out its mission, CAS funds graduate student Research Assistants and additional student hourly workers in a range of research projects and associated outreach activities. In addition to this, CAS has a post-doctoral fellowship program which hosts two concurrent post-doctoral researchers for one to two year terms working on projects that fall within the selected CAS themes, focusing in particular on projects that use the extensive ASU archaeological collections. CAS also strives to be a resource to the local archaeological community in the U.S. Southwest/Mexican Northwest and organizes and hosts collaborative working groups focused on particular topics/regions including ASU faculty and students, external researchers from other universities, and, importantly, relevant land managers from the National Park Service, the US Forest Service and other relevant state and federal agencies. CAS faculty and affiliates are also involved in a large number of externally funded research programs and work to use CAS resources to bring that research to a broader public. This includes working closely with ASU Museums to develop and host exhibits featuring CAS research, participating in ASU events like Open Door and Homecoming, as well as developing additional programs such as short courses for members of the general public through the Osher Lifelong Learning Institute.

The Center for Bioarchaeological Research. The Center for Bioarchaeological Research (CBR), housed and administered within SHESC, was started by Founding Director and Regent's Professor Jane Buikstra in 2005 and has been directed by Professor Kelly Knudson since 2017. Researchers affiliated with the CBR elucidate diverse human experiences in the past, including past lifeways, disease trajectories, and migration patterns, using contextualized

bioarchaeological data and explore how these data relate to broader questions about the past and future of our species. Currently, the CBR consists of five core faculty members, four post-doctoral scholars, and 18 affiliated graduate students. As one of the top bioarchaeology programs, nationally and internationally, CBR affiliates focus their efforts on groundbreaking transdisciplinary research combined with community outreach and high-quality mentoring and teaching. To fund their research and mentoring efforts, CBR faculty have generated more than $3,700,000 in external funding since 2011. In addition, *Bioarchaeology International* and the *International Journal of Paleopathology*, the two top bioarchaeology journals, are both housed at ASU and edited or co-edited by CBR faculty (Baker, Buikstra). A new pilot funding program, established in 2017, encourages new collaborative research projects between scholars at any career stage at ASU and other institutions. By prioritizing projects that will 1) produce pilot data for future externally-funded proposals, 2) increase the diversity and inclusivity of bioarchaeology and the sciences through project participants and/or community outreach, 3) provide opportunities for graduate and/or undergraduate training, and 4) foster new collaborative relationships, this new initiative fosters innovative transdisciplinary research while also increasing diversity and inclusivity in bioarchaeology. Since its inception in 2017, the CBR has funded nine new collaborative projects to a diverse group of graduate students, postdoctoral scholars, and junior and senior faculty.

CBR faculty and students are also committed to public outreach and preK-12 science education, with on-campus events such as mock excavations, laboratory tours, and Homecoming and Open Door. Finally, undergraduate education and outreach has focused on two field experiences as well as student mentoring through the SHESC Undergraduate Research Apprentice program. Professors Kelly Knudson and Christopher Stojanowski have directed a bioarchaeology-focused study abroad in London called Plague Pits and Body Snatchers: History of Health and Disease in a Global City for more than ten years; since 2011, more than 180 students from a variety of diverse majors have completed the study abroad. Through a focus on bioarchaeology as well as global health, students learn about the global history of health through hands-on workshops, behind-the-scenes tours in museums, walking tours, and visits to historical sites within and around London. In addition, Regent's Professor Jane Buikstra has directed the Kampsville field school held at the Center for American Archaeology's research and education facilities in Kampsville, Illinois. One of the longest-running field schools in the United States, Regent's Professor Jane Buikstra has trained undergraduate and graduate students in bioarchaeology and osteology since 1975 at Kampsville, and has been offering the annual field school through ASU since 2005.

The Center for Digital Antiquity. ASU's Center for Digital Antiquity is devoted to enhancing preservation of and access to the archaeological record. The center oversees and maintains the Digital Archaeological Record (tDAR), a digital archive and repository curating digital data from archaeological investigations and research from around the world. The materials preserved in tDAR document the archaeological record, the efforts of the archaeological and scientific community, and the material and social characteristics of the cultures studied. tDAR serves the

needs of a wide range of archaeologists, researchers, organizations, and institutions who use or manage archaeological resources. It enables wide-ranging comparative archaeological research capable of advancing our understanding of the past and our present-day management of archaeological resources.

In April 2018, the Center for Digital Antiquity marked the 10th anniversary of the first record (for the Malpaso Valley – La Quemada Project in Mexico) added to the precursor database to the tDAR (the Digital Archaeological Record) repository. Over the past decade, thousands of new records and files, documents, images, and data sets containing important data from archaeological and cultural heritage research and resource management projects have since been contributed to tDAR. Data contributed to tDAR comes from public agencies that are responsible for ensuring that the data their archaeological projects produce is discoverable, accessible, usable, and preserved for future uses. Among the data being curated in tDAR are data from broadly ranging research on the long-term development of wealth inequality coordinated by SHESC's Michael E. Smith and Timothy A. Kohler. The interpretations of their project have been highlighted in Nature and Science, and by CNN commentator Farheed Zakaria. Other new tDAR content is being contributed as part of grant from NEH and NSF. The NEH grant involves creating in tDAR a comprehensive digital archive for reports of investigations of the ancient Huhugam culture in the American Southwest, which included a widespread society, centered on what is now the Phoenix Basin, but extending as far south as northern Mexico. The society, based on a sophisticated irrigation economy, also was involved wide-ranging trade. With NSF and NEH grants, Digital Antiquity is partnering with other SHESC colleagues, Michael E. Smith on making the rich data from the Teotihuacan Mapping Project available through tDAR and with Michelle Hegmon to improve research opportunities with her Mimbres Pottery Image Database, a large collection in tDAR.

In recent years, the number of tDAR page views range from over 52,000 to over 73,000 per month. Virtual visits, which represent longer time spent on tDAR webpages hovered around 20,000 per month. Downloads of accessible files ranged from 1,530 to 2,853, an increase over the monthly rate in the previous year. The annual increase in tDAR users (3,048) who register was 26%, the same as last year. The number of data contributors increased by 11.5% increase. In 2015, we began to ask individuals registering as tDAR users to select a category that describes their affiliation. So far, users describing themselves as undergraduate or graduate students or higher education faculty are the largest portion of registered users, followed by members of the general public, then CRM or public agency archaeologists or other related professions.

Achieving financial sustainability for the Center is a prime focus of our activities. Revenue generation through research grants and providing digital data management and digital curation services has been robust, with research expenditures growing from less than $100,000 in 2011 to more than $800,000 in 2017. We continue to strive to meet this critical goal, while also creating a digital domain repository where a wide range of professional archaeologists and other cultural heritage experts can both curate their data and find useful data in what others have deposited.

The Center for Global Health. The Center for Global Health is focused on promoting transformative research on complex global health challenges, with a particular focus on social, cultural, and ecological dynamics. Global health is understood in the broad anthropological sense, meaning ways of understanding health and well-being that broadly address a range of cultures, contexts, and time periods. The Center has at its core a commitment to work with partner communities to address health problems that they identify as critical, especially in impoverished or otherwise highly vulnerable communities where uncertainties are most profound, and decision-making is most challenging. The Center encourages research that leverages local community cases to conduct comparative, cross-cultural studies that seek solutions that transcend social, political, and geographic boundaries, with an ultimate goal to support healthy, just, and resilient communities globally.

In the past three years, the Center for Global Health has focused on four major initiatives. First, CGH developed, incubated, and spun-off the Global Impact Collaboratory (GIC). With the GIC, CGH partners development practitioners and social scientists to advance cutting-edge, scientifically-valid, cost-effective methods for designing and tracking behavioral, social, and cultural change in low-resource communities and vulnerable sectors of society. In partnership with USAID and Chemonics International, CGH faculty have taken the lead on major grant-funded global health initiatives, such as *Rapid Gender Assessments* and *Adaptation to Extreme Weather Events*. Second, CGH has a major strength in research on obesity and fat stigma. In partnership with ASU Obesity Solutions-Mayo Clinic, CGH faculty lead research on obesity as a complex problem with multiple layers, not just medical but also geographic, psychological and cultural. Third, CGH has led research progress internationally with a focus on water and health. With funding from UKAid and the US National Science Foundation, CGH faculty have led cross-cultural research and outreach on the measurement of water insecurity and cultural knowledge of water. The CGH also hosted an international meeting on Water and Economy, co-sponsored by the Society for Economic Anthropology, in 2018. Fourth and most recently, CGH faculty are working on several collaborative projects related to a new focal area on *Citizen Science and Global Health*. The goal is to develop citizen science as a radically participatory method for rapidly collecting data on emerging global health challenges.

In this time, the center's faculty members have been invited to lead prestigious plenaries and workshops and have been honored with major awards. Center faculty have published papers in top scientific journals in a broad range of areas of expertise, including cutting-edge science (e.g., Nature, Science, PNAS), public health (e.g., AJPH, Global Public Health), and anthropology (American Anthropologist, Current Anthropology) journals. The Center's faculty members have received external grant from major national funding agencies, including the National Science Foundation, the Centers for Disease Control and Prevention, Robert Wood Johnson Foundation, and the National Institutes of Health. Center faculty were awarded $1,298,686 in the last (2017) fiscal year. The Center is ranked 5th for research awards among 35 centers in ASU's College of Liberal Arts and Sciences in the 2017 fiscal year.

LABORATORIES

Archaeology

Ceramic Technology Microscopy Laboratory (CTML, Michelaki, SHESC 366). Macroscopic and microscopic analysis of archaeological materials, mostly ceramics, but also stone tools. We focus primarily on the generation of data that reveal the choices people made in all the stages of the ceramic and lithic operational sequence. *Facilities include:* Polarizing microscope and stereomicroscopes equipped with digital cameras and image analysis. Photographic scales, exposure cards and a book stand, lights, light tent and tripod. A wide range of mineralogy atlases and reference thin sections, along with archaeological and geological resources to aid in the mineralogical analysis of archaeological ceramics and stone tools.

Ceramics and Sediments Preparation Laboratory (CSPL, Abbott & Michelaki, SHESC 350A). Processing and preparation of geological and archaeological materials. *Facilities include:* desks and stereomicroscopes for the analysis of archaeological ceramics, a drying oven, an electric furnace, deionized water, a fume hood, a snorkel that removes dust efficiently when working with materials like dry clay, as well as standard laboratory supplies (e.g. beakers and other glassware, balances etc.).

Computational Socioecology Laboratory (Barton, SHESC 152). Researchers in this laboratory carry out computational modeling, geospatial modeling, and data analytics on long-term interactions between humans and the environment. This work has been supported by funding from the National Science Foundation, the Social Science Research Council of Canada, the Spanish Ministry of Culture, and other sources. The lab has 8 high-speed (Gigabit) ethernet connections for rapid data transfer and access to ASU HPC clusters, two Linux workstations (each with 8 processors and 16 Gb RAM), two Macintosh workstations, and work areas for 4-5 students, postdocs, or visiting researchers.

Historical Ecology and Ethnobotany Laboratory (Morehart, SHESC 143 and 110a)**.** Research in this lab focuses on analyzing multiple proxies to reconstruct past human-environmental interaction, especially archaebotanical datasets. Analyses center on the processing and identification of macro-floral remains, pollen, phytoliths, and starch grains. The lab processes and houses botanical collections from archaeological sites in Mexico, Belize, Guatemala, and the United States. *Facilities include*: a fume hood for chemical extractions, sinks with silt traps, lab oven, centrifuge, low and high power microscopes, digital imaging equipment and software, desktop computers, standard lab equipment (i.e., beakers, petri dishes, forceps, vials, test tubes, etc.), and considerable work and storage space. The lab also contains an extensive comparative collection of both macro-flora and micro-flora.

Mesoamerican Archaeology Laboratory (Smith, SHESC 104). Quantitative, spatial, and comparative analysis of data in two domains: (1) For Mesoamerican archaeology, the lab serves as the ASU base for archaeological fieldwork projects in Mexico; activities include data entry, archiving, and analysis of archaeological and ethnohistorical data on Aztec sites and

Teotihuacan. (2) For comparative urbanism, the lab is the base for transdisciplinary projects on urban scaling, urban service facility distributions, and other comparative questions. Facilities include: computers, scanners, and a repository for digital, paper, and other records from archaeological projects in Mexico.

Northwest Mexico & Southwest U.S. Archaeology Laboratory (B. Nelson, SHESC 110). The mission of this lab is to produce new knowledge about interactions among prehispanic societies in West Mexico and the US Southwest, especially from 800-1350 CE, and especially about the role of groups who inhabited northwest Mexico. The lab contains original field notes and artifact collections from La Quemada, Zacatecas; the collections here and in a field station in Zacatecas have been the basis for student theses using zooarchaeology; human osteology; wood charcoal analysis; pollen, phytolith, radiocarbon, and sedimentological analyses; neutron activation of obsidian; ceramic petrography, and others. Since 2001, members of the lab group have been constructing the Connections Database, a record of artifacts that represent the long-distance exchange of goods, materials, and information in the Mesoamerican-US Southwestern macroregion. The lab contains computers, desk space, and a collection of rare books and articles pertaining to the archaeology of northwest Mexico.

Social Networks in Archaeology Laboratory (Peeples, SHESC 152). This lab is focused on archaeological network science and data compilation projects including the Southwest Social Networks Project. The lab maintains a major database including detailed information on more than 14 million archaeological objects from more than 20,000 sites and a chemical compositional database from artifacts from the greater US Southwest and Mexican Northwest. Work in this facility centers on generating and analyzing these data for regional scale network research and related comparative social science projects. *Facilities include:* bench and desk space for students, post-doctoral researchers, and visiting scholars, workstation computers for data-intensive statistical and geospatial analyses, layout space for artifact analyses, digital and binocular microscopes, photographic equipment for traditional artifact photography and reflectance transformation imaging, and other standard laboratory supplies.

Southwest Archaeology Laboratory (M. Hegmon and M. Nelson, SHESC 150). Mission: Housing archaeological collections for analysis and curation. Providing research space for students and faculty. The Southwest Archaeology Laboratory has supported work on collections, comprising 10s of thousands of artifacts, from the East Mimbres Archaeological Project and the Mogollon Prehistoric Landscapes Project. It is also used by Dr. Sarah Graff (Barrett, the Honors College) for her analysis of material from Turkey. It currently houses some collections from the Salinas region (collected by Professor Emerita K. Spielmann) in preparation for transfer to the Center for Archaeology and Society. Facilities include ample work and desk space as well as high-density storage.

The ASU Teotihuacan Research Laboratory (Smith, San Juan Teotihuacan, Mexico). This lab is a compound of several buildings at the archaeological site of Teotihuacan, one of the largest cities of the ancient New World. The lab originated in the 1960s as a repository and analytical facility for artifacts recovered by the Teotihuacan Mapping Project. Since then, artifacts and

materials from other archaeological projects have been added, and the physical plant was expanded considerably with funding from the National Science Foundation. Ownership passed to ASU in the 1980s with the hiring of Dr. George L. Cowgill. The facility is used—for both storage and artifact analysis—by archaeologists from ASU and other universities (including Harvard University, Dartmouth College, Boston University, University of Wisconsin, and various Mexican institutions). This is the only foreign archaeological center at the site of Teotihuacan. *Facilities include* bulk storage space for artifacts; secured storage space; tables for artifact analysis; and living quarters for up to 13 individuals.

Zooarchaeology Laboratory (Marean, SCHESC155 and 158). This laboratory is focused on the analysis of animal remains from archaeological sites, though we use it for other research and teaching tasks as well. It curates a large collection of modern skeletal material and taphonomic skeletal material, as well as a substantial collection of fossil remains, and a good collection of supporting equipment like computers and miscroscopes. The Zooarchaeology class is taught in this space, and a large number of postdocs, graduate students, and undergraduate students use it as a research space.

Bioarchaeology

Archaeological Chemistry Laboratory (Knudson, SHESC 303). Preparing archaeological and bioarchaeological samples for isotopic and elemental analysis. Since the ACL was founded in 2006, more than 8,000 enamel, bone, hair, textiles, water, and soil samples have been prepared and analyzed using biogeochemical techniques to answer anthropological questions. *Facilities include:* a freeze-dryer for preparing collagen samples, Millipore Direct-Q system that provides ultrapure water, drying oven, furnace, fume hood, microscopes, balances, standard laboratory supplies, and ample bench and desk space for students and visiting researchers.

Bioarchaeology of Nubia Expedition (BONE) Laboratory (Baker, SHESC 144). Processing and analyses of archaeological material from fieldwork conducted in the Fourth Cataract region of northern Sudan since 2007, including lithics, ceramics, textiles, leather, faunal bone, and human remains addresses human occupation and lifeways from the Early Stone Age through historic period in this poorly known region. *Facilities include:* Human remains include 100 individuals from the Qinifab School site (c. A.D. 0-1400) and approximately 55 individuals from other sites mostly dating to the Kerma period (c. 2500-1000 B.C.) as well as sinks, osteometric equipment, balance, lab supplies, a kiln used by ceramicists, and counter/table space for students and researchers.

Human Osteology and Dental Anthropology Laboratory (Stojanowski, SHESC 302). Preparing osteological samples for bioarchaeological analysis and dental cast samples for multivariate statistical analysis. Since the Human Osteology was founded in 2006 the lab has been used to study and curate human osteological remains from Africa and to train students in bioarchaeological analysis. The lab is currently being used to implement archiving and scanning

of human dental casts from around the world as part of an NSF funded project on the quantitative genetics of dental development. *Facilities include:* osteometric equipment, 3D laser scanner, Microscribe digitizer, table space for analysis of osteological and dental anthropological specimens.

Evolutionary Anthropology

Behavioral Ecology Lab – (Hill, SHESC 370). Data coding and analyses, ethnographic curation, scanner and map room. The has multiple large tables (laid out with ethnographic collections) and chairs for about 10 students. The lab functions as a computer center, data analyses, and discussion room (with white boards) for projects in behavioral ecology. Currently 2 graduate students and 2 undergraduate researchers use the room daily.

Gombe Chimpanzee Research Group (Gilby, SHESC 161). Entry and analysis of long-term behavioral data on the chimpanzees of Gombe National Park, Tanzania. Since 2014, one graduate student and 25 undergraduate apprentices have conducted a variety of projects, including transcription of long-hand behavioral records, identification and extraction of aggression, mating, grooming and hunting, analysis of historic video, and chimpanzee body size measurement using laser photogrammetry. Facilities consist of two desks with desktop computers connected to a shared hard/drive.

Hard Tissue Biology Lab (HTBL) (Schwartz, SHESC 361). This lab is dedicated to the production and analysis of histological thin sections of dental, bone, and petrographic samples. *Facilities include*: a Buehler/Logitech equipment suite for sectioning, lapping, and polishing thin sections, countertop fume hood, Olympus incident and transmitted light microscopes with digital camera, desk and workspace for graduate students and researchers.

Laboratory of Molecular Anthropology (Stone): The laboratory of molecular anthropology is composed of three separate lab spaces that are used for different types of samples (specifically samples with varying quantities of DNA). The data generated in these facilities are used to address questions about degraded DNA preservation, the evolutionary histories of humans and other primates as well as their microbial commensals and pathogens. The three spaces are: **Main laboratory** (Stone, LSE 432). This laboratory is 840 square feet with "wet-lab" bench space available for at least 10 people and "dry-lab" desk space for data analyses for at least 4 people. We use this space for "modern" DNA analyses for a range of projects as well as for post-PCR and post-DNA library analyses of ancient DNA samples. *Facilities include:* biosafety cabinet (BSL2), chemical hood, laminar flow hoods, PCR machines, centrifuges, incubators, Qubit 2.0 fluorometer, refridgerators, freezers (-40 and -80), gel electrophoresis equipment and other standard molecular laboratory equipment and supplies. **Ancient DNA laboratory** (Stone, LSC 558). Preparing samples from archaeological materials, extracting DNA, setting up PCR and DNA library construction. This laboratory is 480 square feet with a class 10,000 clean room

(built in 2003) that takes up about 40% of the space. This laboratory used to analyze degraded forensic and ancient DNA samples from a range of species. *Facilities include:* -40 freezers, refrigerators, chemical fume hood, centrifuges, balances, and standard laboratory supplies. Because the 5th floor of LSC is being renovated for dry laboratory space and because of the current age as well as space limitations of the ancient DNA laboratory, there is currently a proposal to move this laboratory to a newer, larger space in LSE. **Low quantity modern DNA laboratory** (Stone, SHESC 315). Preparing and extracting samples, PCR set up, DNA library preparation (423 square feet). This is a small laboratory used to process forensic and modern DNA samples that have limited amounts of DNA but too much for processing in the ancient DNA laboratory. *Facilities include:* refrigerator, vortexer, balance, centrifuge, biological safety hood (BSL2), and some additional standard laboratory supplies.

Maceration Laboratory (Reed & Marean, SHESC) This laboratory focuses on processing mammals, birds, and reptiles into skeletons that are used for research and teaching. These animal carcasses have been acquired from zoos, self-collected on roads, and other sources. The lab consists of freezers to hold the animals, an anatomy table for dissection, a simmering station, a fume hood for chemical processing.

Primate Cadaver Lab (Reed, LSA) The purpose of this laboratory is to provide dissection and analysis space for the study of primate morphology and biomechanics. This laboratory is currently housed in Life Sciences (SoLS) A wing and consists of space to store four freezers full of primate cadavers and sufficient space and equipment for dissection, elimination of biohazards, etc. The lab is often used by those outside ASU who would like to dissect particular primates.

SACP4 Laboratory (Marean, SHESC 155 and 158). This laboratory is focused on supporting the fieldwork conducted on the south coast of South Africa. The vast majority of materials analysis must be conducted in the host country, so the activities in this lab are mostly computer intensive tasks like image analysis and GIS. Numerous postdocs, graduate students, and undergraduate students are involved and many are supported by funding from this project.

Global Health

compHEALTH Lab (Trumble and Hinde, LSC 356, LSC 344, LSC 360). High-throughput BSL-2 wet lab that specializes in comparing physiology, immunology, nutrition, and endocrinology across populations and species, most typically humans and non-human primates. Our 1890 square foot facility is an official recharge lab for the ASU community and outside researchers and is fully equipped to conduct in-house enzyme immunoassays, multiplex (MagPix and Quansys), and chemolumiescent enzyme immunoassays on biospecimens. We employ an evolutionary framework to evaluate a variety of sample types including serum, milk, plasma, urine, saliva, feces, dried blood spots and other clinical or field-friendly biological specimens to better

understand how human and non-human primate health is influenced by ecology, adaption, and life-history tradeoffs.

The **Trumble Lab** focuses on how environmental conditions like parasites, pathogens, food availability, and social interactions impact human health. Taking an evolutionary life history perspective, we use field and laboratory studies to understand variation in human endocrine systems, and how this influences chronic health diseases of aging including cardiovascular disease and Alzheimer's Dementia. Trumble Co-directs the Tsimane Health and Life History Project, funded by NIH and NSF.

The **Comparative Lactation Lab** (PI Katie Hinde) conducts investigations of the magnitude, sources, and consequences of individually variable milk phenotypes among humans, rhesus, and other mammals. We decode the functions of mother's milk by measuring the concentration of fats, proteins, sugars, minerals, hormones, and other constituents in milk and infant developmental trajectories in the context of maternal characteristics. Transdisciplinary approaches to mother's milk, along with public outreach and science communication, facilitate discoveries at the bench and their translation to applications at the bedside.

Sociocultural Anthropology

Culture, Health, and Environmental Laboratory (CHEL, Wutich & Brewis, SHESC 265 & 250). Providing collaborative empirical global research training and lab-based learning. Incorporates 5 faculty, 2 postdoctoral researchers, 5 doctoral students on NSF-funded research. Since 2007, the CHEL has supervised over 1000 ASU students through two signature programs: (1) the Global Ethnohydrology Project (GEP) which examines local ecological knowledge of water in 10 countries; (2) Research Apprenticeship program which provides undergraduate students the opportunity to build student competencies in data collection, entry, analysis as well as in publication and oral presentation. *Facilities include:* analytical software; MaxQDA, SPSS, UCINET, and Anthropac; ample desk space for students and visiting researchers.

Laboratory of Culture Change and Behavior (LLCB, Hruschka, Matthews Center 203N & 205). The LCCB conducts field-based studies coupled with analyses of large-scale international datasets to identify social and cultural determinants of worldwide variation in human behavior and well-being. *Facilities include:* online and in-person tools for behavioral experiments, surveys, and interviews, curated and harmonized worldwide databases of over 20 million individuals in 100 low- and middle-income countries, code for large-scale data synthesis and analysis, analytic software and customized code (i.e. SAS, Stata, R, SPSS, UCINET, ArcGIS, Atlas.TI).

OTHER RESEARCH ENTERPRISES

The Global Impact Collaboratory (GIC) partners development practitioners and social scientists to advance cutting-edge, scientifically-valid, cost-effective methods for designing and tracking behavioral, social, and cultural change in low-resource communities and vulnerable sectors of society. The GIC is about transforming how we plan for and demonstrate the impacts of development programs on people and their communities. Our goal is to answer two questions: How can we ensure our international development projects are really working? How can we make sure what we learn on projects, about what really works, is widely shared? To do this we work on with Chemonics International and other implementing and thought partners to evaluate and develop indicators for USAID- and DFID-sponsored projects.

In the past year, the GIC has won funding from DFID (UK Development for International Development) an US State Department and have numerous applications under review. The GIC has implemented culturally-sensitive methods for gender assessments in the context of women's empowerment and gender-based violence USAID-sponsored justice program in the West Bank, Palestine. The GIC will be presenting work on our pilot studies with cultural consensus at the American Evaluation Association Meeting, has one paper under review, and two more in development.