

Institution - Tohono O’odham Community College (TOCC)

Chief Executive Officer - Paul Robertson, Ph.D., President

Date Submitted to the Higher Learning Commission (HLC) - January 30, 2018

1. Action

HLC’s September 19, 2016 letter to TOCC pursuant the Institutional Actions Council determination notes that TOCC must submit “An Interim Report due 1/31/2018 regarding faculty evaluations, program review, and data management.” This report addresses program reviews.

2. Core Component 4.A

b. Program Reviews

Core Component 4.A, “The institution demonstrates responsibility for the quality of its educational programs,” was met with concerns. Subcomponent 1 addresses the matter directly: “The institution maintains a practice of regular program reviews.”

3. Areas of Focus – The final Reaffirmation Review Report dated July 5, 2016 (hereinafter identified as RRR), stemming from HLC’s comprehensive evaluation conducted in March 2016, noted that the “assurance argument and meetings with faculty, administrators, and staff revealed that no program reviews have occurred, and recommended that the College provide to HLC an interim report including completed program reviews (RRR: p. 28-29).”

4. Program Review at TOCC

The HLC Reaffirmation Review Team visited TOCC in March 2016. At that point, TOCC had not conducted program reviews. The final report notes that program reviews were also addressed in the 2012 [HLC] Report, which suggested that the college “develop a comprehensive plan for the review of all programs (RRR: p. 44).” TOCC adopted its first Program Review Plan in February 2016. The RRR recommended that TOCC submit a monitoring report, “with program reviews consistent with the TOCC Program Review Plan (p. 29) and further noted that the dates on the plan and the dates in the College’s strategic plan were in conflict. A revised plan, addressing the conflict in dates, and establishing realistic benchmarks, was adopted in January 2017 (Appendix 1: page 2).

A. Timeline – charting TOCC’s Program Review Progress since 2016 HLC Visit

January 2017 – Program Review Plan amended by the President, with revised benchmarks (Appendix 1).

April 28, 2017 – first rough drafts of social services, science, business, and liberal arts program reviews completed and reviewed by Faculty Senate.

August 8, 2017: Faculty discussions and group work on program review as part of faculty enrichment week before fall semester 2017 classes start, with consultant Anthony Osborn (Agenda is at Appendix 2).

September 19, 2017 – Institutional Effectiveness provides Education Division with needed data on student grades and numbers of majors for use in Program Reviews (Appendix 3).

October and November 2017 – Dean of Academics submits Program Reviews for Science, Liberal Arts, Business, and Social Services to the President.

November 2017 – Board of Trustees reviews and accepts program reviews for TOCC's Science, Liberal Arts, Business, and Social Service degrees (Appendices 4,5,6,7).

January 2018 – Building Construction Technologies (BCT) submits program review draft to President for consideration in line with the timeline established in TOCC's program review plan. Board of Trustees will review by April 2018 (BCT Draft at Appendix 8).

B. Narrative account supporting TOCC's claim that the College is addressing Core Component 4.A. section b. Program Reviews

Since the HLC visit, TOCC administration and faculty have taken needed steps to come into compliance with the program review requirement of Core Component 4.A. Reviews of the Associate of Arts in Liberal Arts, Associate of Business in Business Administration, Associate of Arts in Social Services, and Associate of Science in Life Science, were completed in fall semester 2017. Those are TOCC's four major academic programs in terms of student numbers and sufficient history (four years) to warrant full-scale review (Institutional Data Points <https://www.tocc.edu/institutional-effectiveness>).

Program Reviews were drafted by full-time faculty, vetted by the Faculty Senate and the TOCC Cabinet, and submitted to the Board of Trustees in November 2017. The Institutional Effectiveness office provided faculty with data on numbers and grades of students in the majors. The Dean of Academics worked with a consultant to support faculty as they worked on their program reviews. He facilitated group discussions, explained the role of the faculty senate and administration in the process, and emphasized the requirements of Core Component 4.A and other areas that were met with concerns by the 2016 HLC comprehensive evaluation (HLC Presentation, Appendix 9).

The reviews provide useful information about the College's programs, including information about resources needed, staffing needs, possible future directions, assessment, and student retention. In sum, TOCC's programs have been implemented in accord with the College's Program Review Plan, with the exception of Early Childhood Education (ECE), which, due to the absence of a qualified full-time faculty member, has been granted an extension until the end of spring semester 2018.

TOCC's Building Construction Technologies (BCT) program, with a review due in spring semester 2018, submitted its draft review in January 2018 (Appendix 8.)

Results of the program reviews are under consideration by TOCC's administration. Some will be further reviewed by the Board of Trustees during its spring semester 2018 retreat. Among the findings and recommendations being actively considered by administration are the following:

- Neither the four academic programs reviewed, nor the BCT program, have program-specific mission statements. Administration is making that a requirement in AY 2018;

- TOCC needs to track its graduates and learn more about how their experiences at TOCC impacted them and was not able to provide detailed data to the programs for their reports. TOCC's plan to join the National Student Clearinghouse should provide limited but insufficient data;
- TOCC programs have sufficient and highly qualified faculty for the immediate future, though in order to achieve growth in business and to better support large numbers of liberal arts majors, TOCC may have to expand numbers of adjuncts and full-time faculty members;
- In its review, the Science Program Review recommended “hiring a full-time Chemistry Instructor and adjuncts to teach Physics, Introduction to Anatomy and Physiology, and Nutrition, as well as Geology and Astronomy” (Science Review: p. 39);
- Although the program reviews show important movement on assessment, systematic program learning outcome assessment has to be monitored to ensure routine administration with results reviewed by administration and faculty caucuses. The faculty senate will be charged with carrying out those caucuses, because individual programs do not have sufficient numbers of faculty to conduct their own.

More generally, administration and board consideration of the completed program reviews show that each continues to be viable, has levels of support adequate to continue, and should continue. Recommendations made by faculty through those reports are being considered and administration will provide written feedback to the Education Division in spring semester 2018.

An important next step will entail the use of program reviews during the spring 2018 review of the College's strategic plan, which will be led by the administration and the Leadership and Data team. The second of four initiatives in that plan, “Provide curricula that aligns with TOCC's Mission and Vision,” called for completion of initial reviews by fall of 2016 and that needs to be revised to reflect the timelines in the current program review plan. That initial timeframe proved overly optimistic. Now that the process of program review is underway, all of the constituencies involved have a better, more realistic sense of what is possible.

The Board's consideration of program reviews during their November 2017 Board meeting, and their plan to further review results of program reviews during their upcoming spring 2018 retreat, shows that the importance of program reviews at TOCC is recognized at the highest level. The budget process, already underway for Fiscal Year 2019, will further serve to institutionalize program reviews as they are used by the Education Division to justify requests for resources and for new and continuing faculty positions.

In sum, the process of regular program review at TOCC has begun in earnest and will continue. The value of the reviews to the faculty, to administration, and to the Board of Trustees is clearly a plus to the College. The use of program reviews in planning toward the institutions future growth, and to its ongoing efforts to provide quality education is clear. The institutional culture of the institution has changed as a result of the process involved in preparing the reviews. That process involved faculty members, the faculty senate, administrators, Institutional Effectiveness personnel, Cabinet members, and the Board of Trustees in a process that will become part of the institutional fabric at the College.

Appendices

1. Program Review Plan
2. Faculty Enrichment Week Agenda
3. Institutional Effectiveness to Education Division
4. Liberal Arts Program Review
5. Social Services Program Review
6. Science Program Review
7. Business Program Review
8. BCT Draft Program Review
9. HLC Presentation to Faculty

TOCC PROGRAM REVIEW PLAN

Academic program review is designed to ensure that programs align with the mission, and that fiscal, human, and other resources needed to support a program are being wisely and appropriately allocated. This plan formalizes the program review process at TOCC.

Program reviews of Certificates and Associate programs will be ongoing, and a formal program review of every offering will be carried out once every four years. During the initial phase, major academic programs (i.e., those with most students, including science, social services, business, and liberal arts) will be reviewed by the end of fall semester 2017, and submitted to the Faculty Senate, Cabinet, and Board of Trustees not later than January 2018. Benchmarks and responsible parties are identified in Chart 1. The four-year schedule for program reviews is described in Chart 2.

Reviews will entail formal self-study reports to be completed by lead faculty and full-time faculty in those programs being reviewed. The reviews will address alignment with TOCC's mission, departmental goals, program learning assessment results, enrollment, faculty credentials and engagement, recommendations, and future plans. A more detailed explanation of the self-study process for program reviews is included immediately after Chart 2 below.

Chart 1 – Sample time line and benchmarks for Program Review at TOCC - actual dates may vary.

Action	Date	Responsible Party
Notification by President to Dean of Academics to initiate Program Review	August 1	President
Submit completed review to Faculty Senate for review	January 6	Dean of Academics
Faculty Senate review and recommendations submitted to Dean of Academics	February 10	Dean of Academics
President's Cabinet reviews program review documents and Senate recommendations and makes recommendations to the Board of Trustees	March 10	President
Board of Trustees reviews self-study recommendations	April 15	Board of Trustees
Administration confers with Dean of Academics regarding implementation of recommendations	April 25	President

Chart 2 –Timeline for Program Review for TOCC (includes all Certificates and Associate degree programs)

Programs (Note: all Associate degrees and Certificates within a discipline)	Program Review – Initial Round – dates of completion	4-year cycles of review (after 2016/2017)
AS Science - (All Options)	fall 2017	fall 2021
AA Liberal Arts	fall 2017	fall 2021
AA Social Services	fall 2017	fall 2021
Business	fall 2017	fall 2021
Casino Gaming Certificate	fall 2018	fall 2022
AA Fine Arts	spring, 2018	spring 2022
AA Early Childhood Education	fall 2017	fall 2021
AA Tohono O’odham Studies	fall 2020	fall 2024
Building and Construction Technologies	Spring 2018	spring 2022

Internal Program Review Self-Study

The Dean of Academics will provide oversight to the program review process, and will assist in identifying and mobilizing technical assistance and needed resources to the departments carrying out the reviews.

Reviews will be organized according to the eight sections described below.

Section 1. Introduction

- Describe the program.

- Include a checklist of required courses, narrative that includes program history, mission, vision, application processes, criteria for admittance, and other general information.
- Note any curriculum changes that have been made to the program during the past four years and explain the rationale for such changes.
- If external reviews of your program are conducted, include references to those reviews and copies of the most recent review reports.

Section 2. Program alignment with college mission and purposes

- Provide evidence that the program's mission, design, and program learning outcomes align with TOCC's mission and goals, including Himdag.
- Include evidence of Departmental caucuses reflecting assessment of these criteria.

Section 3. Alignment with Community Needs

- Provide information about graduates from the program during the past 4 years, to include higher education they may be pursuing, or did pursue, employment they have, and locale of residence.
- Provide labor market information related to the program and provide information about starting wages identified for such programs per the Department of Labor statistics.
- Describe any partnerships with outside entities that provide internship or practicums for students in the program.
- Include information from employer surveys
- Compare the program review with most current Environmental Scan data

Section 4. Student Participation and Success

- Provide figures for enrollment in the program major for the past four years, numbers of graduates, and time to graduation.
- Include any student survey data on satisfaction with the program and career choice.

Section 5. Program Learning Outcomes, Curriculum and Instruction

- Provide program learning outcomes; describe the process used to evaluate those outcomes; provide a summary of the outcome data; and describe any adjustments to the program that have been made or considered as a result of learning outcome data.
- Provide an up-to-date list of course descriptions, including prerequisites.
- Describe the pedagogy and techniques (e.g. hybrid, community learning, constructivist approaches, service learning) involved in innovations in teaching.

- Provide a representative sample of student evaluations of faculty for each instructor teaching in the program.

Section 6. Human, Financial, and Physical Resources

- List fulltime and adjunct instructors teaching in the program, including their degree attainment and/or evidence of known expertise.
- Provide a statement attesting to the level of expertise for delivery of the program.
- Summarize data regarding faculty/staff and their professional development over the past eight years.
- Weigh in on the issue of full and part-time faculty/staff, release time, anticipated retirements, and other issues essential to program delivery.
- Describe how faculty/staff members are engaged in TOCC activities and self-governance. Describe their involvement in community life on and/or off the Tohono O'odham Nation.
- Make a reasoned argument addressing the level of adequacy of both fiscal and physical resources, highlighting both strengths and needs.

Section 7. Recommendations and Preliminary Implementation Plan

- Provide recommendations for the future of the program based on the results of the self-study.
- Describe the potential trajectory and development of the program during the coming four years.
- Describe how challenges identified in the self-study will be addressed and provide an estimate of the human, physical, and fiscal resources that will be needed.

Section 8. Informing Stakeholders

- Once the self-studies for the Program Review are complete, send electronic copies to the President of the Faculty Senate and to the President's Cabinet. Both entities review the completed self-study reports and make their own recommendations.
- Should actions be indicated, administration will work out the needed action plan with the Education Division.

Faculty Enrichment Week
(August 4th - August 12th, 2016)

Thursday, August 4th (Gewkdag Son Ki: Room A1-A3)

- 9:00 am - 9:15 am President Paul Robertson's Welcome.
- 9:15 am - 11:00 am *Man in the Maze* presentation (Camillus Lopez).
 - *Problem Base Learning and Indigenous Evaluation Framework* (Jorge Guarin).
- 11:00 am - 12:00 pm Chair or Vice-Chair of Tohono O'odham Nation Welcome & Presentation.
- 12:00 pm - 1:00 pm Lunch (provided).
- 1:00 pm - 3:00 pm Course preparation on your own.
- 3:00 pm - 5:00 pm Himdag Committee presentation with Andrea Ramon.

Friday, August 5th (Meeting outside the Ha Mascamdam Ha-Ki:.)

- 8:15 am - 4:00 pm Visit the Schuk Toak District communities.
- Lunch and transportation provided. **(Gewkdag Son Ki: Room A1)**

Monday, August 8th (Gewkdag Son Ki: Room A1-A3)

- 9:00 am - 12:00 pm. *Program Review: Designing a program review plan for TOCC.* (Neal Wade, Mario Montes-Helu, and Anthony Osborn).
- 12:00 pm - 1:00 pm Lunch (POTLUCK-bring something to share)
- 1:00 pm - 3:00 pm Jenzabar update: final grades, attendance, and distant learning (IT personnel).
 - Concurrent adjunct faculty orientation.
- 3:00 pm - 5:00 pm. Course preparation on your own.
 - Concurrent adjunct faculty orientation.

Tuesday, August 9th

- 9:00 am - 12:00 pm
 - 9:00 am Student Orientation at **Ha-Mascamdam Ha-Ki:.**
 - 10:00 am NAU & TOCC Memorandum of Understanding signing event.
(Gewkdag Son Ki:).
- 12:00 pm - 1:00 pm Lunch (provided).
- 1:00 pm - 2:00 pm Course preparation on your own.
- 2:00 pm - 5:00 pm Presentation from TOCC Student Services. **(Gewkdag Son Ki: Room A1-A3).**

Wednesday, August 10th (Gewkdag Son Ki: Room A1-A3)

- 9:00 am - 12:00 pm *Reading and Writing Across the Curriculum* (Edison Cassadore).
- 12:00 pm - 1:00 pm Lunch on your own.
- 1:00 pm - 5:00 pm Course preparation on your own.
 - Student Orientation at **Ha-Mascamdah Ha-Ki**.

Thursday, August 11th (Gewkdag Son Ki: Room A1-A3)

- 9:00 am - 12:00 pm Course preparation on your own.
- 12:00 pm - 1:00 pm Lunch on your own.
- 1:00 pm - 5:00 pm *Strengthen Faculty Through Shared Governance* workshop (Guy Senese and Adrian Quijada)

Friday, August 12th

- 8:30 am - 12:00 pm All Staff meeting. (Gewkdag Son Ki: Room A1-A3)
- 1:00 pm - 5:00 pm Faculty Senate



Mario Montes-Helu <mmonteshelu@tocc.edu>

Program of Study Data Request 9.19.17

6 messages

Ben Jose <bjose@tocc.edu>

Tue, Sep 19, 2017 at 12:07 PM

To: Mario Montes-Helu <mmonteshelu@tocc.edu>

See attachment. Let me know if you would need help making sense of the data.

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*Sincerely,**Ben Jose**Research Assistant**Tohono O'odham Community College**Institutional Research***(520) 383-0104****bjose@tocc.edu**

5 attachments **AALA Data For Liberal Arts Faculty 7.21.17.xlsx**
5021K **AASS Data For Social Services Program.xlsx**
4784K **AFA Data For Fine Arts Faculty 9.13.17.xlsx**
4887K **Business Programs Data For Business Faculty 7.21.17.xlsx**
4819K **ECE Data For Early Childhood Education Faculty 7.21.17.xlsx**
4828K

Ben Jose <bjose@tocc.edu>

Wed, Sep 20, 2017 at 8:47 AM

To: Mario Montes-Helu <mmonteshelu@tocc.edu>

I forgot to attach the Life Sciences spreadsheet. see attachment.

[Quoted text hidden]

Sincerely,

[Quoted text hidden]

*Institutional Effectivness***(520) 383-0104****bjose@tocc.edu**

 **ASLS Data For Science Faculty 7.21.17 (1).xlsx**
4621K

Mario Montes-Helu <mmonteshelu@tocc.edu>

Wed, Sep 20, 2017 at 9:11 AM

To: Ben Jose <bjose@tocc.edu>

Ben,

I started checking them. They have the information that we need for the program review.

Thank you so much for your help.

Mario

[Quoted text hidden]

--

Mario Montes-Helu, PhD

Academic Dean

Tohono O'odham Community College

Ha-Mascamdham Ha-Ki: Room 123

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Email mmonteshelu@tocc.edu

Ben Jose <bjose@tocc.edu>

Wed, Sep 20, 2017 at 10:43 AM

To: Mario Montes-Helu <mmonteshelu@tocc.edu>

Thank for letting me know.

[Quoted text hidden]

Mario Montes-Helu <mmonteshelu@tocc.edu>

Tue, Oct 17, 2017 at 12:20 PM

To: Neal Wade <nwade@tocc.edu>, Curtis Peterson <cpeterson@tocc.edu>

Data

[Quoted text hidden]

--

Mario Montes-Helu, PhD

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2 attachments



AASS Data For Social Services Program.xlsx

4784K



Business Programs Data For Business Faculty 7.21.17.xlsx

4819K

Curtis Peterson <cpeterson@tocc.edu>

Tue, Oct 17, 2017 at 12:26 PM

To: Mario Montes-Helu <mmonteshelu@tocc.edu>

Thank you!!

Curtis Peterson, PhD- Candidate

Appendix 3
Social Psychologist
Social Science and Services Faculty
520-383-0048
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<https://www.tocc.edu>
<https://www.psycguy.peterson.com>

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On Oct 17, 2017, at 12:20 PM, Mario Montes-Helu <mmonteshelu@tocc.edu> wrote:

<AASS Data For Social Services Program.xlsx>



**Liberal Arts Program Review
(Open Pathway)
(11/25/2017)**

Prepared by:

Edison Cassadore, MA, PhD

Tony Osborn, MA, MPA, MEd, PhD

I. Introduction

A. Program Description

The Associate of Arts is a transfer degree for students interested in liberal arts, humanities, and social and behavioral science. TOCC's Liberal Arts AA is functions as a "default" category. Students who have not made a definitive choice of degrees, and who would otherwise be undecided, often begin with Liberal Arts, enabling them to concentrate on general education. If completed according to transfer guide recommendations for a specific bachelor's program, the Associate of Arts in Liberal Arts (AA) degree can help a student attain admission as a junior at one of Arizona's public universities (The University of Arizona, Arizona State University, or Northern Arizona University).

B. Program History

The Associate of Arts (AA) in Liberal Arts approved in June 2014 marked a significant departure from the AA in Liberal Arts in the previous catalogs. The main change was to replace 24 credits of free electives with 18 credits of specifications and 6 credits within specified parameters, resulting in a "literature emphasis." That change provided a degree more akin to a literature degree. In addition to that degree, TOCC students continued to have the option of a more open liberal arts AA degree that can assist them in their quest for graduation within a fairly short time span and that can provide them the broad range of choices that a traditional liberal arts degree provides.

Due to the lack of student participation in the "literature emphasis" option, it was discontinued in June 2016.

Further discussion about curricular changes and resultant program changes is discussed below under the “E.” section.

As of spring 2017, the three degree concentration offerings are also discussed further under the “E.” section.

C. Special Applications or Requirements

There are none.

D. All Required Courses

Associate of Arts in Liberal Arts (AALA) (2014)

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
English Composition	WRT 101 Writing I	3
	WRT 102 Writing II	3
Mathematics	MAT 142 Topics in College Math or higher	3
Humanities & Fine Arts	Any Fine Arts Course	3
	THO 101 meets this requirement	N/A
	Any Humanities Course	3
Social & Behavioral Science	HIS 122 meets this requirement	N/A
	Any SBS course	3
	Any SBS course	3
Two Lab-loaded Science Courses “N” designation		4
		4
TOTAL CREDITS - GENERAL EDUCATION		36
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Distributed Electives	LIT 299 Liberal Arts Capstone	1
	Distributed Electives: 24 credits including 3 or more credits each from Literature, History, and Speech/Communication. Nine (9) credits overall must be from courses numbered 200 and above.	24
TOTAL CREDITS - CORE REQUIREMENTS		25
Section III. Electives		
Fulfill Requirements	Course	Credits Required

Free Elective	Any one elective	3
TOTAL CREDITS - ELECTIVES		3
TOTAL CREDIT HOURS		64

E. Note any curriculum changes that have been made to the program during the past four years and explain the rationale for such changes.

A program modification was approved in May 2014. This modification introduced two options: the “Open Pathway” option and the “Literature Emphasis” option. The Associate of Arts in Tohono O’odham Studies and the Associate of Arts in Liberal Arts—Studies in Indigenous Borderlands, were added as new degree programs in May 2015.

In June 2016, the “Literature Emphasis” concentration was deactivated.

To date, the previous chair of the Faculty Senate’s Curriculum Committee indicated that program-level outcomes and its curriculum map for the AALA—Open Pathway concentration has yet to be officially approved by Cabinet and the Board of Trustees.

F. If external reviews of this program are conducted, include references to those reviews and copies of the most recent review reports.

Arizona’s AZTransfer system allows for new curricular offerings and curricular modifications to be reviewed with its infrastructure through the various two-year colleges and state universities. This review ensures that new curricular offerings or curricular modifications from the College are transferable and articulate for a smooth transition for students to universities within the state. Currently, this is the closest that the College receives to an “external review.”

II. Program Learning Outcomes, Curriculum and Instruction

The table below shows the AALA—OP program’s curriculum map, PLOs, and assessment methods.

Associate of Arts in Liberal Arts—Open Pathways: Curriculum Map

Date and result of Curriculum Committee vote: Approved 10/2/2014

Date and result of Himdag Committee vote: Approved 10/2/2014

Date and result of Cabinet vote: No date provided from available documents

Program for transfer

AA in Liberal Arts (Open Pathways)						
Program Level Outcomes		8 credits of lab-loaded biological and/or physical science	HIS 122, other HIS, & 6 credits in social & behavioral science	WRT 102, SPE 110 or other SPE, one Lit Class	HIS 122, THO 101 or 106	Exit Presentation
1	Demonstrate effective reading, writing, & speaking skills	R	I	R	I	A
2	Demonstrate ability to use research techniques to address a given topic	A		R	I	
3	Be able to use critical thinking skills to provide multiple perspectives on a specified issue of general concern	R	R	I	I	A
4	Be able to employ perspectives from the social sciences to assess a social problem.		R		I	A
5	Demonstrate the ability to use concepts and methods of the physical and biological	I, R, A				A

	sciences to make informed judgments.					
6	Demonstrate ability to use the T-So:son to analyze a socio-political issue	I	R		I	A

(**Note:** The program-level outcomes have been approved by the Curriculum and Himdag (cultural) Committees.)

Currently, Literature 299, the liberal arts program capstone course, is under development for a piloted implementation in spring 2018. This capstone course is designed to assess program-level outcomes for AALA—OP.

Below is a summary of the outcome data:

From the data, the majority of 354 students during 2012-2017 appeared to have passed liberal arts courses in history, literature, and speech with earned A's, B's, and C's ("Students with Liberal Arts—Open Pathway Major," 2012-2017). Overall, 77% of students passed with A's, B's, and C's while 60% of students earned A's and B's.

No adjustments to the program that have been made or considered as a result of learning outcome data.

Because the core requirement electives for AALA—OP are wide-ranging and distributed over 24 credits in literature, history and speech/communication, the prerequisites generally for 100- and 200-level literature courses are Writing 102 or concurrent enrollment.

Currently, history and speech/communication courses do not have prerequisites.

The following is a list of curricular offerings in literature that require prerequisites.

LIT 174: Introduction to Native American Writings

Prerequisite: WRT 101 Credits: 3 cr. hrs. (3 pds: 3 lec) Description: Study of Native American texts, including autobiographical writings, short stories, and nonfiction. Includes introduction to historical and cultural contexts, themes and issues addressed by Native American authors, Native American narratives, and reports and presentations. May convene with LIT 274.

LIT 274: Native American Literature

Prerequisite: WRT 101 Credits: 3 cr. hrs. (3 pds: 3 lec) Description: A survey of Native American oral stories, autobiographical writings, fiction, poetry, and nonfiction. Includes

historical and cultural contexts, major themes/issues in contemporary Native American literature, literary forms and techniques, and critical essays. May convene with LIT 174.

LIT 289: Literature and Film

Prerequisite: WRT 102 or concurrent enrollment Credits: 3 cr. hrs. (3 pds: 3 lec)

Description: Criticism of films’ dramatic forms, elements and genres. Includes development of film as an art form, comparative approaches to literature and film, performed drama, critical analysis, and film production personnel.

LIT 290: World Literature and Global Film

Prerequisite: WRT 102 or concurrent enrollment Credits: 3 cr. hrs. (3 pds: 3 lec)

Description: This course provides a survey of Native American, Aboriginal, Maori, and Canadian First Nations oral stories, autobiographical writings, fiction, poetry, filmic representations, and nonfiction. It also includes a global, comparative approach to historical and cultural contexts, major themes and issues in contemporary world indigenous literature, literary forms and techniques, and critical essays.

Formative and summative assessments are actively applied. The following pedagogical techniques are currently in use for innovations in teaching:

- Cooperative learning and constructivist approaches are in use whereby students actively engage with course materials by responding to questions and generate new ideas in discussions that follow;
- Where appropriate, videos are incorporated into the courses to enhance instruction and to provide representative illustrations of course concepts;
- Portfolios and journals are used for reflection and to demonstrate mastery of key critical-thinking and problem-solving skills; and,
- Oral presentations are also incorporated along with the Core Values identified by the College to give students the opportunity to demonstrate mastery of course outcomes and to build confidence in grappling with complex issues of identity and their socio-political and cultural implications.

Below is a representative sample of student evaluations of faculty for each instructor teaching in the program.

Dr. Sharon Parker
Introduction to Philosophy
PHI 101

Item	Rating	Item	Rating
Rating of course	3.8	Instructor’s teaching effectiveness	3.8
Cultural sensitivity	3.7	Himdag discussion	3.5
Level of learning	3.8	Respect	4.0

In-class activities	3.8	Homework	3.8
Course material	3.8	Timely feedback	3.8
Instructor on time	3.8	Instruction clarity	4.0

13. What did you especially like about this course?

- I loved the books that she choose for us to read. They were great books!
- Everything.
- Learning about the cultures. And talking with the class about it.
- The Native American Readings
- The books

14. What suggestions would you make to improve this course?

- Nothing (twice)
- None
- More books

Tim Cox, MA
Writing II
WRT 102(2)

Item	Rating	Item	Rating
Rating of course	3.3	Instructor's teaching effectiveness	3.2
Cultural sensitivity	3.4	Himdag discussion	3.4
Level of learning	3.4	Respect	3.6
In-class activities	3.4	Homework	3.5
Course material	3.5	Timely feedback	3.5
Instructor on time	4.0	Instruction clarity	3.5

13. What did you especially like about this course?

- Things that Mr. Cox talked about were eye-opening and made you think a lot.
- Don't know - don't care for writing.
- Ofelia Zepeda poems and other Native authors.
- Improving my writing skills.
- The deep understanding of writing and literature - it was a good class
- Mr. Cox introduced a variety of authors including from textbook that was purchased
- Nothing
- How the instructor gave us handouts of a sample writing paper
- The in-class discussion
- Informational
- It was challenging and helped me discover the elements of the thought process in reading and writing literature.

14. What suggestions would you make to improve this course?

- No suggestion. I liked the class as it was.
- Nothing really
- Classes specifically on Native poetry

- Keep this instructor!!!
- A longer time for bigger classes - to develop deeper skills
- Everything - most of the sessions were about topics I do not need to be educated in!
- Explain journal entries better
- N/A
- The class structure was fine, no changes at this time.

Wendi Cline, JD
 Writing I
 WRT 101

Item	Rating	Item	Rating
Rating of course	3.4	Instructor's teaching effectiveness	3.3
Cultural sensitivity	3.0	Himdag discussion	2.5
Level of learning	3.4	Respect	3.9
In-class activities	3.3	Homework	3.4
Course material	3.6	Timely feedback	3.4
Instructor on time	3.7	Instruction clarity	3.5

13. What did you especially like about this course?

- Clam (!) and very much explainable (?), and understanding. Very patient.
- The journal, I think that it really helped to express writing.
- The assignment, lectures, and time given for each assignment. She's patient.
- This course was good. I had enough time to do assignments.
- I liked how much writing we did and understanding the assignments.
- That we'd get to write papers of what we liked.
- How we always wrote.
- Course material was solid understanding of travel and obligations outside of coursework was fair.
- Teacher works with you.
- The assignments were explained very clearly, make writing less intimidating.
- The lectures and group activities we did during class.
- How the instructor was flexible with schedules.
- I really enjoyed being able to basically be able to write about whatever I wanted.
- It is very open to your own interpretation of things and ideas.

14. What suggestions would you make to improve this course?

- Be more exciting and make me want to come to class.
- None at this time.
- None. (twice)
- More hands-on stuff.
- I have none.
- Just more writing, less talking.
- Nothing.

- Maybe go a bit more into a assignment and directions.
- Nothing, everything was good in my opinion.
- I don't have any - I actually just want Wendi to teach Writing 102 as well.
- A way to check assignments.

Dr. Edison Cassadore
 Introduction to Native American Writings
 LIT 174

Item	Rating	Item	Rating
Rating of course	3.8	Instructor's teaching effectiveness	4.0
Cultural sensitivity	4.0	Himdag discussion	4.0
Level of learning	3.5	Respect	3.8
In-class activities	4.0	Homework	3.5
Course material	4.0	Timely feedback	4.0
Instructor on time	4.0	Instruction clarity	3.3

13. What did you especially like about this course?

- All the reading assignments, all the class discussions, everything was great.
- I appreciate the exposure to various readings from other tribes and seeing importance of the idea of perspective.
- The materials used.
- The class discussions, and how Dr. Cassadore was extremely motivated about wanting us to succeed.

14. What suggestions would you make to improve this course?

- Nothing, this class is great.
- Make sure to keep discussing outside assignments as those can fall to the wayside, catching students off guard.
- Maybe a two hour class time.

Section III. Program Alignment with College Mission and Purposes

TOCC offers the Associate of Arts in Liberal Arts (AALA) for students who are interested in a broad-based college education that allows them the freedom to choose a variety of subjects during their first two years in college. The AALA degree concentrations are also designed for transfer and can help students transfer to four-year colleges and universities with a specialized block of courses. All Liberal Arts concentrations incorporate the AGECA (the Arizona public university system requirements for General Education).

Graduates in the liberal arts are known to have good communication and critical-thinking skills and work in many fields.

Although the Associate of Arts in Liberal Arts does not have a mission statement per se, its design and program-learning outcomes align with the college's mission and goals by preparing students with a broad-based education that prepares students for the complex demands of the workplace and for further pursuance of a four-year degree at one of the state's major universities. Indeed, from a composition course to a Western literature survey course to courses in Native American literature to a global literature and film course (with an Indigenous perspective), this program allows for a range of human experiences to be explored by students so that they gain additional perspectives. This range of course offerings equally prepares students for a variety of experiences in a diverse world.

Liberal arts faculty members follow a syllabus template that has a cultural component regarding the T-So:son (or Core Values) specifically identified by the college. Each faculty member incorporates the T-So:son into required coursework.

While the liberal arts program does not have “departmental caucuses” per se, faculty members met on a month-to-month basis in fall 2016 and spring 2017 to discuss ongoing academic and curricular concerns related to “reading and writing across the curriculum.” During these meetings, a strengths, weaknesses, opportunities, and threats (i.e., SWOT) analysis was conducted. From this analysis, recommendations were made for implementation. In fall 2017, program level assessment was initiated, and results and recommendations for the program are forthcoming.

Section IV. Student Participation and Success

Below are student enrollment figures in the program major for the past four years, including numbers of graduates, and time to graduation.

Year	Enrolled	Graduated	Average Time to Graduate (years)
2016	213	6	5
2015	129	7	2
2014	121	11	2.9
2013	122	5	3

Student survey data on satisfaction with the program and career choice are still pending.

Section V. Alignment with Community Needs

Current information about graduates from the program during the past 4 years, including higher education they may be pursuing, or did pursue, employment they have, and locale of residence, is pending. The college is currently in the process of joining the National Student Clearinghouse, which will provide this information.

Student enrollment in the Associate of Arts in Liberal Arts was 213 in fall semester 2017 and those numbers are expected to grow insofar as the recent growth in overall enrollment at TOCC is sustained. The AA in Liberal Arts, however, is TOCC's default category. Students who have not decided which degree program to follow, identify their majors as Liberal Arts. TOCC started, in fall semester 2017, to involve faculty in advisement activities with students, something that the academic advisor had been doing mostly on her own in previous semesters. This change may result in fewer majors in Liberal Arts if students determine that they are ready to make a career choice after advisement by faculty.

One example of the labor market pay grade is the technical writer. Although a Bachelor's degree is usually required for a technical writer, the AALA—OP program provides a gateway for transferring to an English degree program at a four-year academic institution. According to the U.S. Department of Labor statistics in the "Occupational Outlook Handbook" section, the 2016 median pay for a technical writer was \$69,850.00 and the median pay rate was \$33.58 per hour.

Although no formal partnerships currently exist with outside entities that provide internship or practicums for students, students in the past have gone on field trips to The University of Arizona Press offices and warehouse in Tucson.

Potential internships could include editorial internships at a local university press or at the Arizona Theatre Company for student internships when students are nearing completion of their two-year degrees.

Currently, data from employer surveys are not available. TOCC will join the National Student Clearinghouse in 2018 and that will help us track students who graduate and those who transfer out.

The Liberal Arts program is in alignment with a TOCC Needs Assessment Spring 2015 document as the sixth most requested program, which was part of the Tohono O’odham Nation Visioning Assessment.

Section VI. Human, Financial, and Physical Resources

Below is a list of full-time and adjunct instructors who are teaching in the program, including their degree attainment and/or evidence of known expertise.

Full-time and Adjunct AALA-OP Instructors			
Name	Full-time & Adjunct Instructors	Degree	Experience & Other Qualifications
Dr. Edison Cassadore	Full-time	PhD	Publishing Certificate
Wendy Cline	Adjunct	JD	MLIS
Tom Cox	Adjunct	MFA	
Dr. Sharon Parker	Adjunct	PhD	

Dr. Cassadore has a strong English literature and cultural and literary studies academic background to liberal arts. He also received publishing training at Harvard University with an emphasis in academic publishing. After completing intensive publishing training, he furthered his academic training by bringing a prestigious paid internship and fellowship from the Hewlett Foundation to The University of Arizona Press as an editorial assistant. As an editorial assistant, he learned the entire process of academic publishing by working with the senior acquisitions editor and copy editors.

Upon acceptance in the selective Comparative Cultural and Literary Studies doctoral program at The University of Arizona, he studied with two prominent and nationally and internationally recognized scholars in folklore and cultural studies: Drs. Barbara A. Babcock and Annette Kolodny. Both scholars, one a regents professor and the other a former dean of humanities, provided thorough and rigorous academic training in preparation for the professoriate. After completion of his studies, he graduated with honors and was inducted into Pi Lambda Theta, a highly prestigious international honors society in education.

The above educational background provides for expertise in the delivery of the program.

Liberal Arts faculty have participated in professional development over the past four years.

Liberal arts faculty have been required to attend scheduled “Faculty Enrichment Week” sessions in fall 2016, spring 2017, and fall 2017 before each semester begins. Sessions

have included topics related to classroom and program-level assessment, electronic-based infrastructure for courses, incorporation of the T-So:son (“Core Values”) into courses, and general academic professionalism in higher education.

In 2015, Dr. Cassadore was selected as a National Endowment for the Humanities Summer Scholar for an institute titled “On Native Grounds: Studies of Native American Histories and the Land” at the Library of Congress in Washington, D.C. The institute’s primary focus was “an opportunity for seventeen select faculty participants from two-year community and four-year colleges, tribal colleges, and universities, and three graduate students in a humanities discipline, to enhance their teaching and research through a three-week residency at the Library of Congress, and by engaging with prominent scholars in the field of Native American ethnohistory and legal history” (Native American and Indigenous Studies Association website). The lead faculty member’s research at the Library of Congress further enhanced knowledge concerning Native American representations in film. The institute, indeed, directly supported Literature 289 and 290 (see course descriptions above).

In 2015 several liberal arts faculty members attended the Annual Conference of the Higher Learning Commission and a session titled “Exploring the Criteria 3 & 4” from a Pathways Workshop.

Several liberal arts faculty members, in addition, attended an Assessment Workshop supported by The Higher Learning Commission in February 2013. Sessions focused on topics such as the following:

- “Defining and Assessing General Education Outcomes”
- “Assessment Basics”;
- “Diversity Learning Outcomes”; and,
- “An Introduction to Curriculum Mapping,” among others.

All of the above activities have contributed to the depth and breadth of knowledge of liberal arts faculty members both in assessment processes and infrastructure and in professional development.

Future expansion of liberal arts in humanities and drama will necessitate budgetary allowance for adjunct faculty members’ salaries.

Several liberal arts faculty members have been active in T-Ba’itk (“Our Voice”)/Faculty Senate as elected executive officers.

Dr. Edison Cassadore was president of the Faculty Senate for an unprecedented four terms from 2012 to 2016. He has been active in the Continuous Improvement for Student Learning Committee (CISLC) and was also a member of the Curriculum Committee and the Faculty Development Committee. Dr. Cassadore revived the Faculty Senate after a period of languishment and provided a revived leadership and stabilized this form of self-governance for the next president.

Elaine Cubbins (Librarian), who is considered part of the college liberal arts faculty, has also served as president, vice president, and currently serves as the elected secretary for T-Ba'itk.

Dr. Cassadore has been involved with various community-oriented events at the college. From college “open houses” to creating booths to showcase liberal arts to volunteering for a college booth at the annual Tohono O’odham Nation Rodeo and Fair, he has actively participated in community life.

The current level of fiscal and physical resources are sufficient to keep it at its current status. However, if the liberal arts program is to grow, it should expand into humanities-specific courses relevant to the borderlands. Because the humanities are about human experiences and the recording of those experiences, it behooves the program to offer more courses that highlight the uniqueness of Indigenous and non-Indigenous experiences in the Southwestern borderlands. Course and programmatic development could begin by developing a borderlands literary course that emphasizes Tohono O’odham, Indigenous, and non-Indigenous experiences in the areas surrounding the college. A course, indeed, that emphasizes inter-cultural texts such as film, literature, music, and artistic representations related to the borderlands could be developed.

Section VII. Recommendations and Preliminary Implementation Plan

- A. Provide recommendations for the future of the program based on the results of the self-study:
1. Ensure that program level assessment is carried out annually and that data are reviewed in meetings of liberal arts faculty along with the Academic Dean so that needed adjustments can be made; Complete assessment of one program learning outcome each semester using either the Capstone project under development or the Exit Presentations or a mixture of each.
 2. Work with Institutional Effectiveness to follow up on how Liberal Arts transfer students and graduates are faring in the world of work and in other institutions of higher learning and make an annual report at the close of the spring semester, beginning in spring 2018.
 3. Work with other faculty, through the faculty senate, to address further career counseling for the large number of liberal arts students, some of whom are in the major largely because they have not been able to make career choices.
 4. Consider other options for diverse offerings, including studies in indigenous borderlands, but bear in mind the issues that led to the deactivation of a prescriptive liberal arts program like the erstwhile “liberal arts” option.
- B. Describe the potential trajectory and development of the program during the coming four years.

In accord with TOCC's goal of expanding enrollment to 500 students by 2020, the Liberal Arts AA program should develop flyers, campus activities, and sessions with graduates in order to school them on the utility of the Liberal Arts AA while at the same time providing them career counseling so that they can have more informed degree choices.

Although the Liberal Arts program has two qualified faculty members, consideration should be given to hiring a full-time faculty member who can teach composition and who can also teach needed developmental courses (Integrated Reading and Writing). The addition of a full-time faculty member would strengthen the core of the Liberal Arts degree. The number of students in the program warrants consideration of such an action.

The notions about strengthening the offering by adding courses in drama and in indigenous borderlands need to be carefully considered and students need to be recruited to determine if there is sufficient interest from the student body.

C. Describe how challenges identified in the self-study will be addressed and provide an estimate of the human, physical, and fiscal resources that will be needed.

The key challenge is to determine how to move more students through the program to graduation. The number of graduates, as indicated in section IV on page 11 of this report, should be higher given the number of Liberal Arts majors. There are sufficient resources in TOCC at the present time to address this challenge. The Liberal Arts faculty will work with Institutional Effectiveness in order to determine the retention, persistence, and time to graduation for Liberal Arts majors and will use those data in order to make informed decisions.

Section VIII. Informing Stakeholders

Copies of this program review have been reviewed by the President and Cabinet, by the Faculty Senate, and by the Board of Trustees.

Should actions be indicated, TOCC administration will work out the needed action plan with the Education Division.

Social Services Program Review (11/25/2017)

Prepared by:

Elaine Cubbins, MA-IRLS

Tony Osborn, MA, MPA, MEd, PhD

Reviewed and edited by:

Curtis Peterson, MS

I. Introduction

A. Program Description

The Associate of Arts in Social Services (AASS) is a transfer degree that includes social work courses and is considered to be a step toward the Bachelor's degree in social services, human services, or social work. The two-year requirements of the AASS are similar to those required for entry into the Bachelor in Social Work (BSW) programs at the Arizona State University (ASU) and at Northern Arizona University (NAU). A student earning the AASS may transfer to one of these Arizona public universities as a junior.

B. Program History

The Associate of Arts in Social Services is one of the first transfer degrees ever offered by TOCC. The 2000-2002 TOCC College Catalog lists the courses and number of credits (60-64) to earn the AASS degree. The college was under Pima Community College (PCC) at this time in its early history, so all this program's specifications were exactly the same as PCC's AASS program. TOCC's 2002 printed course bank identifies the courses, their learning objectives and course outlines.

In 2014 the TOCC Education Division began work with Arizona State University (ASU) on aligning social work classes with ASU social work student's first two-year college experience, a process that was completed in 2016. The alignment allows for a seamless transition from TOCC to ASU. Additionally, the specific social work courses will align with the first two-year course work at Northern Arizona University (NAU) for a degree in social work. The goal of this alignment is to (a) encourage students to continue on with their education beyond the Associate degree level, and (b) have an efficient credit transfer from the two-year institution to the four-year institution.

In early fall 2016, 26 students were AASS majors. A full time social services faculty member was hired in July 2017. Up to this point, these courses were taught by adjunct instructors, and the program was overseen by the Vice President and General Education Chair of the Education Division..

C. Special Applications or Requirements

There are no special application processes or requirements for this program.

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D. All Required Courses**Associate of Arts in Social Services (AASS) (2016)**

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
English Composition	WRT 101 Writing I	3
	WRT 102 Writing II	3
Mathematics	MAT 142 Topics in College Math or higher	3
Humanities & Fine Arts	Any ART Course	3
	THO 101 meets this requirement	N/A
	PHI 101 Introduction to Philosophy	3
Social & Behavioral Science	HIS 122 meets this requirement	N/A
	PSY 101 Introduction to Psychology or SOC 101 Introduction to Sociology	3
	ECN 202 Macroeconomic Principles	3
Two Lab-loaded Science Courses “N” designation		4
		4
TOTAL CREDITS - GENERAL EDUCATION		36
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core requirements. Strongly recommended: 2.75 GPA in SSE and SWU classes	CIS 100 Introduction to Computers	3
	SWU 171 Introduction to Social Work	3
	SSE 121 Introduction to Substance Abuse	3
	SWU 291 Social Service Delivery Systems	3
	SWU 295 Foundations of Social Work Practice: Effective Helping in a Diverse World	3
	POS 110 American National Government	3
TOTAL CREDITS - CORE REQUIREMENTS		18
Section III. Electives		
Fulfill Requirements	Course	Credits Required
Free electives – 6 credits	Any electives	6
TOTAL CREDITS - ELECTIVES		6
TOTAL CREDIT HOURS		60

In order to match the four-year institutions in Arizona for a degree in social work, some changes were needed and those are shown in the tables below. The SSE Core changed into a more refined set of courses. The 2012-2014 college catalog shows specific science courses were listed from which students could select a total of 8 credits. The 2016-2018 catalog states that students must take two 4-credit lab-loaded courses, “N” designation, from the physical and biological sciences to meet this requirement, without specifying which courses. In the 2012-2014 catalog, the minimum number of credits to complete the program was 61; in the 2016-2018 catalog, 60 credits total are required, a change in line with current Higher Learning Commission (HLC) recommendations.

Current AASS Core requirements moved some courses into the general education requirements, some were eliminated, and others were replaced with SWU courses.

Eliminated as Core Courses	Added as Core Courses
BIO 127N Human Nutrition and Biology (now a possible elective)	POS 110 American National Government
BIO 154N Global Change Biology (now a possible elective)	SSE 121 Introduction to Substance Abuse (formerly an elective)
BIO 160N Introduction to Human Anatomy & Physiology I (now a possible elective)	SWU 171 Intro to Social Work
ECN 202 Macroeconomic Principles (now a general education requirement)	SWU 291 Social Service Delivery Systems
PHI 101 Introduction to Philosophy (now a general education requirement)	SWU 295 Foundations of Social Work Practice: Effective Helping in a Diverse World
PSY 101 Introduction to Psychology (general education requirement that may be substituted by SOC 101 Introduction to Sociology)	
SSE 110 Intro to Social Welfare	
SSE 111 Group Work	
SSE 202 Casework Methods 1	
SSE 210 Community Organization & Development	
SSE 211 Group Technique Applications	
SSE 212 Casework Methods 2	

Electives are no longer prescribed, but left to the student’s discretion.

Prescribed Electives Eliminated	Electives Added
SSE 121 Introduction to Substance Abuse	Any electives for a total of 6 credits
SSE 140 Domestic Violence Causes and Cures	
SSE 146 Child Abuse Intervention & Protection	

There are no external reviews for this program. Faculty and the curriculum coordinator work with the Arizona Transfer program to verify that the courses for the AASS degree are transferable to the state universities.

II. Program Learning Outcomes, Curriculum and Instruction

The table below shows the AASS program's curriculum map, Program Learning Outcomes (PLOs), and assessment methods.

Associate of Arts Social Services: Curriculum Map

Date and result of Curriculum Committee vote: Approved 10/2/2014

Date and result of Himdag Committee vote: Approved 10/2/2014

Program for transfer

AA in Social Services		Required Courses (I=introduced; R=reinforced; A=assessed)				
Program Level Outcomes		SWU 171 Intro to Social Work	POS 110 American Government	SSE 121 Intro to Substance Abuse	SWU 291 Social Services Delivery Systems	SWU 295 Foundations of Social Work Practice: Effective Helping in a Diverse World
1	Context of delivery of social services: Students will articulate structural explanations for the causes of poverty and social problems.	I	I		R	A (Method: Essay Examination)
2	Knowledge of Human Services Field: Students will demonstrate the basic scope and principal features of the field of social services in the public and private sectors at the tribal, state and national levels.	I		I	R	A (Method: Class Presentation)
3	Needs assessment – Students will demonstrate the ability to assess the needs of service recipients and to provide appropriate referrals for them.	I		I	R	A (Method: Developed assessment and care plan)

AA in Social Services		Required Courses (I=introduced; R=reinforced; A=assessed)				
4	Cultural Sensitivity: Students will demonstrate cultural awareness and sensitivity needed to respectfully serve the Tohono O'odham and others in a diverse service population.	I		I	R	A (Method: Exam)

Each of the courses in the table is required and introduces, reinforces, or assesses one of the PLOs. All AASS graduates are assessed for their knowledge, skills and attitudes of the program content, which although it measures student abilities and knowledge, is primarily purposed to answer the question: Are students learning what the AASS claims to be teaching them?

The 2nd and 4th PLOs meet the Himdag requirement through presentations in two separate courses, which assess student learning of social services in a tribal environment and cultural sensitivity toward Tohono O'odham in need of social services. From the online 2016-2018 catalog, below are the course descriptions for the two courses that assess tribal and Tohono O'odham sensitivity. Text that is specific to meeting the Himdag requirement is in italics:

SWU 291 Social Services Delivery Systems: Covers federal, state, private not-for-profit, and for-profit social service delivery system's purpose, structure, and professional roles. *Includes 40 service learning hours. Explains how to meet client needs by identifying and coordinating community resources in accord with accepted social work practices. By familiarizing students with service delivery systems in Arizona and in the Tohono O'odham Nation, students will be able to identify a general framework for the delivery of social services.* The case management model of service delivery is also introduced; and,

SWU 295: Foundations of Social Work Practice: *Introduces the theoretical and practical foundations necessary for beginning social work practice in a diverse world. Emphasizes the theoretical foundation and skill base necessary for effective culturally competent communication and interviewing skills with individuals, families, small groups, and in larger systems. Prepares students to begin effective culturally competent communication with diverse constituencies.*

The AASS program has the potential to meet every TOCC goal; however, the program's focus to educate Tohono O'odham students as social service providers specifically meets the 4th and 5th goals on the TOCC web site:

- To ensure the integration of appropriate Tohono O'odham Himdag in the physical environment, curriculum, and processes of the college.

- Met by requiring students to show cultural sensitivity and their abilities and knowledge to work in a tribal setting; and,
- To ensure that curricular offerings are relevant to the needs of communities and individuals in fundamental skills; i.e., general reading, writing and math skills.
 - Met by providing education to students who will meet the social services needs of their communities and the Tohono O’odham Nation.

Two PLOs specify that students show their cultural sensitivity to work with Tohono O’odham and to work in a tribal setting, which are demonstrated in two courses that assess this goal’s focus. Meeting the 2nd above goal is evidenced by the program’s focus, to educate Tohono O’odham students to earn their AASS that leads to Bachelor’s degrees in social work and graduate level degrees.

A. The following courses represent the program of study that was in place for the majority of this review:

Fulfill Requirements	Course	Credits Required
Core requirements. Strongly recommended: 2.75 GPA in SSE and SWU classes (required GPA for seamless transfer to AZ State U. BSW Program)	CIS 100 Introduction to Computers: Introduces computer information systems: components, problem solving and program/system development concepts, application of information technology and computer ethics and security. Includes applied problem solving using a spreadsheet tool.	3
	SWU 171 Introduction to Social Work: Explores current environmental issues and challenges in the US-Mexico border, and provides the foundation for understanding the current social welfare system and the ways that social services have developed in the U.S. This historical perspective helps students understand how social work can influence, and be influenced by, social welfare policy. Students will gain an understanding of the various roles social workers have and the settings in which they practice. Includes social work interventions of practice, policy, and research and the knowledge, values ethics, and skills underpinning the practice of social work with diverse populations, with special emphasis on Native American cultures. Special emphasis on the practice of social work in the context of Southwest cultural and ethnic traditions.	3
	SSE 121 Introduction to Substance Abuse: Introduction to the history of drug abuse, including alcohol in the United States. Includes classification of drugs, historical review of drug laws, prohibition, and theories of addiction, treatment, strategies, cultural perspectives and treatment interventions. Also includes special populations, education, and available resources to addicts, alcoholics and their families.	3

	SWU 291 Social Service Delivery Systems: Covers federal, state, private not-for-profit, and for-profit social service delivery system's purpose, structure, and professional roles. Includes 40 service learning hours. Explains how to meet client needs by identifying and coordinating community resources in accord with accepted social work practices. By familiarizing students with service delivery systems in Arizona and in the Tohono O'odham Nation, students will be able to identify a general framework for the delivery of social services. The case management model of service delivery is also introduced.	3
	SWU 295 Foundations of Social Work Practice: Effective Helping in a Diverse World: Introduces the theoretical and practical foundations necessary for beginning social work practice in a diverse world. Emphasizes the theoretical foundation and skill base necessary for effective culturally competent communication and interviewing skills with individuals, families, small groups, and in larger systems. Prepares students to begin effective culturally competent communication with diverse constituencies.	3
	POS 110 American National Government: Basic concepts and substance of American politics. Includes methods of political analysis, cultural environment of American politics, impact of class, gender, and immigration, Constitution, civil liberties, and civil rights, public opinion and fundamental values, political institutions, and institutions of government, economic and social policymaking, and American foreign policy and interdependence.	3

B. Describe the process used to evaluate those outcomes:

- a. Formative and summative evaluation
- b. Observations, performance-based measures

C. Provide a summary of the outcome data – student grades:

Course	Year	A	B	C	D	F	W	Total
SSE 202 Casework Methods II	2012	4					1	5
SSE 220 Treatment of Substance Abuser	2012	3	4					7
SSE 110 Intro Social Welfare	2013	6	1					7
SSE 121 Intro Substance Abuse	2013	12	2			1		15
SSE 140 Domestic Violence: Causes and Cure	2013	3	1			1		5
SSE 146 Child Abuse Inter. and Protection	2013	6						6
SSE 110 Intro Social Welfare	2014	2	4					6
SSE 121 Intro Substance Abuse	2014		5					5
SSE 202 Casework Methods II	2014	3						3

Course	Year	A	B	C	D	F	W	Total
SSE 110 Intro Social Welfare	2015	7	5	2				14
SSE 121 Intro Substance Abuse	2015	18			1		1	20
SSE 202 Casework Methods II	2015	5		5				10
SSE 210 Foundation of Practice	2015	10						10

The data indicated that the majority of students successfully completing in the various courses attempted from 2012 – 2015. Over 95% of the students passed their courses. Over 83% earned a grade of A or B.

D. Describe any adjustments to the program that have been made. Provide an up-to-date list of courses including prerequisites.

The course outcome data indicate that students tend to successfully complete the courses with high performance marks. However, there are some difficulties in interpreting these data because as described in the Introduction in Section D, many of the courses that have been measured have gone through course revisions that were fully implemented in 2016. While it seems students successfully completed courses historically, monitoring student success will be a key aspect in assessing the continued success of these courses. Current courses in the social services area include:

Concentration	Course	Course Name	Notes/Prereq.
Social Services	SSE 111	Group Work	None
Addiction	SSE 121	Intro to Substance Abuse	None
Addiction	SSE 123	Substance Abuse Prevention	None
Social Services	SSE 140	Domestic Violence	None
Social Services	SSE 146	Child Abuse	None
Social Services	SSE 211	Group Techniques	SSE 111
Social Services	SSE 212	Casework Methods II	SWU 291
Addiction	SSE 220	Treatment Substance Abuse	SSE 120
Addiction	SSE 222	Political & Legal Aspects Substance	SSE 120
Gen. Ed.	SOC 101	Intro to Sociology	None
Gen. Ed.	SOC 127	Marriage and Family	None
Gen. Ed.	PSY 101	Intro to Psychology	None
Gen. Ed.	PSY 132	Psychology and Culture	None
Social Work	SWU 171	Intro to Social Work	WRT 102
Social Work	SWU 291	Social Service Delivery Systems	PSY 101 or SOC 101
Social Work	SWU 295	Found. of Social Work Practice	SWU 171

E. Provide a representative sample of student evaluations of faculty for each instructor teaching in the program.

Spring 2014

Dr. Bruce Payette

SSE 110 Introduction to Social Welfare

Item	Rating	Item	Rating
Rating of course	4.2	Expected out-of-class time	7.2hrs
Instructor's teaching effectiveness	4.3	Value of out-of class time	4
Level of learning	4	In-class activities	4.3
Himdag integration	6	Homework	3.7
Respect	5	Course material	4.3
Difficulty	3.2	Himdag discussion	4.5
Comparison with other instructors	4	Average GPA of students in course,	2.92
Expected final grade	3	self-report	
Cultural sensitivity	4.8		

Gender: 2/6 female, 2/6 male, 2/6 not given

Spring 2014

Dr. Bruce Payette

SSE 110 Introduction to Social Welfare

Item	Rating	Item	Rating
Rating of course	4.2/5	Expected out-of-class time	7.2hrs
Instructor's teaching effectiveness	4.3/5	Value of out-of class time	4
Level of learning	4/5	In-class activities	4.3
Himdag integration	6/6	Homework	3.7
Respect	5	Course material	4.3
Difficulty	3.2	Himdag discussion	4.5
Comparison with other instructors	4	Average GPA of students in course,	2.92
Expected final grade	3	self-report	
Cultural sensitivity	4.8		

Gender: 2/6 female, 2/6 male, 2/6 not given

Spring 2014

Dr. Bruce Payette

SSE 146 Child Abuse Intervention and Protection

Item	Rating	Item	Rating
Rating of course	4.2	Expected out-of-class time	6.4hrs
Instructor's teaching effectiveness	4.3	Value of out-of class time	3.8
Level of learning	4	In-class activities	4.3
Himdag integration	6	Homework	3.8
Respect	4.8	Course material	4
Difficulty	3.2	Himdag discussion	3.6
Comparison with other instructors	4.2	Average GPA of students in course,	3.25
Expected final grade	3.4	self-report	
Cultural sensitivity	4.5		

Spring 2015
 Dr. Bruce Payette
 SSE 110 Introduction to Social Welfare

Item	Rating	Item	Rating
Rating of course	4.2	In-class activities	3.4
Instructor's teaching effectiveness	4.3	Homework	2.6
Level of learning	4	Course material	3.2
Himdag discussion	2.6		
Respect	3.6		
Timely feedback	3.2		
Instructor on time	4		
Instructor clarity	3.4		

Overall, students seem to be generally satisfied with the course offerings, the rigor provided and summative outcomes.

III. Program Alignment with College Mission and Goals

- A. The AASS program does not have its own mission statement. A recommendation is for appropriate faculty and staff to work with the TOCC Curriculum Council to develop a mission statement that is consistent with its design and program learning outcomes (PLOs), and which aligns with the College's mission and goals, including Himdag.

All AASS students must meet the College's Himdag requirement of taking HIS 122 Tohono O'odham History & Culture and THO 101 Elementary Tohono O'odham. In addition, knowledge and skills for working in a tribal environment and cultural sensitivity for Tohono O'odham and a diverse workplace are assessed in two courses (see curriculum map and narrative above).

The AASS program's design and program learning outcomes align with the College's mission by helping to educate a community of Tohono O'odham social service providers to meet the needs of the Tohono O'odham Nation. The program's restructuring in 2014 assured that students were on a direct path leading to ASU's social work program.

- B. To date, there are no departmental caucuses reflecting assessment of program criteria. New faculty, led by full-time faculty member Curtis Peterson, will implement this process beginning in spring semester 2018.

Section IV. Student Participation and Success

- A. Below are enrollment figures for students majoring in the program over the past five years, the number of graduates and the length of time students took to graduate from the program.

Year	Enrolled	Full-time	Part-time	Graduated	Average Time to Graduate (years)
2012	7	2	5	1	4
2013	15	0	15	1	3
2014	25	17	8	1	2
2015	49	25	24	1	2
2016	35	18	13	4	2

Significant enrollment growth was noted in the program between 2012 and 2015.

- B. Include any student survey data on satisfaction with the program and career choice.

TOCC data is pending. Lead faculty member Curtis Peterson, who joined TOCC in fall 2017, will work with Institutional Effectiveness to gather the needed survey data.

Section V. Alignment with Community Needs

- A. Provide information about graduates from the program during the past 4 years, to include higher education they may be pursuing, or did pursue, employment they have, and locale of residence.

According to data in Section IV, a total of 4 students have graduated with an AASS.

- B. Labor market information related to the AASS comes from the U.S. Occupational Outlook Handbook, CareerOneStop for state of Arizona data, and by online information provided by Tohono O'odham human resources.

Social and Human Service Assistants

(U.S. Occupational Outlook Handbook, <https://www.bls.gov/ooh/community-and-social-service/social-and-human-service-assistants.htm>)

Students who earn an AASS may transfer to an Arizona university to earn their Bachelor's in social work. Students who earn the AASS may be able to find employment as a social and human service assistant (SHSA). An SHSA may work in a nonprofit, for profit, or governmental position. They support professional staff and, "provide client services, including support for families, in a wide variety of fields, such as psychology, rehabilitation, and social work. They assist other workers, such as social workers, and they help clients find benefits or community services." In 2015, median annual pay was \$30,830, or, \$14.82 an hour. A high school diploma

with additional training allows for entry level as an SHSA, but some employers prefer some college education.

The employment outlook for 2014-2024 is expected to increase by 11% for a job increase of 44,200 jobs across the U.S.

- For U.S. geographic profiles for this position, see <https://www.bls.gov/oes/current/oes211093.htm#st>
- For U.S. industry profiles for this position, see <https://www.bls.gov/oes/current/oes211093.htm#ind>
- For U.S. national estimates for this position, see <https://www.bls.gov/oes/current/oes211093.htm#nat>

A student with a Bachelor's degree in social work is qualified as a social worker and does not need additional education for that position. Earning a Master's degree in specialized fields opens additional doors to the student.

The snapshot below (created 4-5-2017) is an online screenshot for Arizona's occupational outlook for SHSA and can be recreated with additional information and with all live links by initiating the search for Social and Human Services Assistants at this website:

https://www.careerinfonet.org/Occupations/select_occupation.aspx?next=occ_rep&level=&optstatus=111111111&id=1&nodeid=2&socode=&stfips=&jobfam=&menuMode

OCCUPATION PROFILE - ARIZONA

SOCIAL AND HUMAN SERVICE ASSISTANTS: ARIZONA

Occupation Description

Assist in providing client services in a wide variety of fields, such as psychology, rehabilitation, or social work, including support for families. May assist clients in identifying and obtaining available benefits and social and community services. May assist social workers with developing, organizing, and conducting programs to prevent and resolve problems relevant to substance abuse, human relationships, rehabilitation, or dependent care. Excludes "Rehabilitation Counselors", "Psychiatric Technicians", "Personal Care Aides", and "Eligibility Interviewers, Government Programs".

State and National Wages

Location	Pay Period	2015				
		10%	25%	Median	75%	90%
United States	Hourly	\$9.68	\$11.72	\$14.82	\$18.72	\$23.83

	Yearly	\$20,100	\$24,400	\$30,800	\$38,900	\$49,600
Arizona	Hourly	\$9.92	\$11.50	\$13.53	\$16.43	\$18.93
	Yearly	\$20,600	\$23,900	\$28,100	\$34,200	\$39,400

State and National Trends

United States	Employment		Percent Change	Projected Annual Job Openings ¹
	2014	2024		
Social and Human Service Assistants	386,600	430,800	+11%	12,000
Arizona	Employment		Percent Change	Projected Annual Job Openings ¹
	2014	2024		
Social and Human Service Assistants	7,000	8,640	+24%	300

¹Projected Annual Job Openings refers to the average annual job openings due to growth and net replacement.

Distribution of Educational Attainment

Occupation	Percent of employees aged 25 to 44 in the occupation whose highest level of educational attainment is						
	Less than high school diploma	High school diploma or equivalent	Some college, no degree	Associate degree	Bachelor's degree	Master's degree	Doctoral or professional degree
Social and Human Service Assistants	2.4%	16.9%	28.4%	11.6%	28.8%	11.2%	0.8%
Counselors, Social Workers, and Other Community and Social Service Specialists	1.5%	7.2%	13.4%	6.6%	33.3%	34.4%	3.5%
Community and Social Service	1.6%	7.4%	13.7%	6.8%	33.2%	33%	4.4%

According to the above data, Arizona's median pay for an SHSA is approximately 9% lower than the U.S. national median pay. Arizona's outlook for 2014-2014 is a 24%

increase of approximately 300 jobs, whereas the U.S. is an 11% increase for an additional 12,000 jobs. In 2015, 11.6% of SHSA workers held an AA degree.

For the SHSA worker in Arizona, the following table presents 2015 occupational outlook information for the metropolitan areas of Flagstaff, Phoenix-Mesa-Glendale, Tucson, and Yuma. As above for the state data, this online screenshot table can be recreated with live links:

https://www.careerinfonet.org/Occupations/select_occupation.aspx?next=occ_rep&level=&optstatus=11111111&id=1&nodeid=2&soccode=&stfips=&jobfam=&menuMode

Wages by Metropolitan Areas

Wages for Social and Human Service Assistants

Location	Pay Period	2015				
		10%	25%	Median	75%	90%
United States	Hourly	\$9.68	\$11.72	\$14.82	\$18.72	\$23.83
	Yearly	\$20,100	\$24,400	\$30,800	\$38,900	\$49,600
Flagstaff, AZ MSA	Hourly	\$11.16	\$12.79	\$14.46	\$17.17	\$19.14
	Yearly	\$23,200	\$26,600	\$30,100	\$35,700	\$39,800
Phoenix-Mesa-Glendale, AZ MSA	Hourly	\$9.96	\$11.48	\$13.42	\$16.06	\$18.71
	Yearly	\$20,700	\$23,900	\$27,900	\$33,400	\$38,900
Tucson, AZ MSA	Hourly	\$9.76	\$11.13	\$13.45	\$16.73	\$18.65
	Yearly	\$20,300	\$23,200	\$28,000	\$34,800	\$38,800
Yuma, AZ MSA	Hourly	\$12.07	\$13.02	\$14.24	\$17.03	\$19.38
	Yearly	\$25,100	\$27,100	\$29,600	\$35,400	\$40,300

National Data Source: Bureau of Labor Statistics, Occupational Employment Statistics Survey

State Data Source: The Labor Market Information Office within the State Employment Security Agency

According to the above data, Yuma pays the highest annual salary for the SHSA worker, followed by Flagstaff, the Phoenix metropolitan area, and Tucson at the lowest end.

The Tohono O'odham Nation's Human Resources job summary for 4/3/2017 shows no openings for social services or social work support staff. A position for a Case Manager for Senior Services is advertised for an annual salary of \$49,460; this position likely requires a Bachelor's or Master's degree. For more information, see <http://www.tonationnsn.gov/employment/>

A review of available positions for Indian Oasis/Baboquivari Unified School District #40, Bureau of Indian Education available positions on the Tohono O'odham Nation, the Sells hospital, and IHS on the Nation showed no positions available for social services or social work staff on April 6, 2017.

Currently there are no partnerships with outside entities that provide internships or practicum for students in the AASS program. Individual instructors may set up service learning opportunities for students, but there is no coordinated service learning center or specified coordinator on campus. Several years ago, an instructor was a ¼ time service learning coordinator, but the position ended once grant funding ceased.

- C. An email from the Institutional Effectiveness department director revealed that to date, TOCC is yet to survey employers of AASS graduates, therefore there is no employer data at this time. The Institutional Effectiveness department is relatively new with two employees; over time, these surveys will be developed and utilized.
- D. Over a 5-month period in spring of 2015, the Institutional Research department (now the Institutional Effectiveness department) visited the 11 districts of the Tohono O'odham Nation to gather quantitative and qualitative data on community perceptions about how well TOCC had fulfilled its vision, mission and goals over the previous decade. Survey participants included tribal and district leaders and community members, TOCC community members, and Baboquivari high school students who are potential TOCC college students (n=475).

A comparison of this program review with the 2015 Environmental Scan data shows that the AASS program is consistent with at least four of the top five items; one item requires an assumption that this program review and other research will determine as being accurate (i.e., high quality education). The five items identified as most important by the survey participants include, in order of importance:

1. *Promote the O'odham Himdag by strengthening individuals, families, and communities* (#1 on the survey). Two of the four AASS program PLOs require student assessment on sensitivity of Himdag and working in a tribal setting with a diverse population, showing that this important item is considered to be important for a graduate to know, and it is being addressed in the program.
2. *Provide students with a high quality education* (#10 on the survey). This is the item that is yet to be shown by this program review and other sources. A full-time instructor was hired in July 2017, which will benefit the program's quality.
3. *Prepare students for 4-year colleges and universities* (#5 on the survey). The purpose of this transfer degree program is for graduates to attend 4-year institutions with social work/social services academic programs. The hiring of

a full time instructor in social services will strengthen this item, along with the continued collaboration with the state's universities.

4. *Prepare students to grow as persons (academically, professionally and personally) (#3 on the survey).* The Core courses and general education courses for the program prepare students academically for transfer to a 4-year program, professionally to enter the social services/social work profession, and to expand their personal understanding and engagement in the world through the AGEC and general education liberal arts courses
5. *Prepare students for employment (#4 on the survey).* Potentially graduates could enter into a technician or paraprofessional position with the AASS, but the primary purpose of the degree is for students to transfer into a 4-year social services/social work academic program and to graduate as social workers, or another social services professional. The full-time instructor in social services brings experience to help students prepare for employment. Career advising would also strengthen this item.

Section VI. Human, Financial and Physical Resources

The table below shows the full-time and adjunct instructors teaching in the program, including their degree attainment and evidence of their known expertise.

Name	FT /Adj	Degree
Curtis Peterson	Full-time	Master's
Dr. Bruce Payette	Adjunct	Doctoral

Mr. Peterson has 15 years of experience in the field of social services which has included direct client treatment and services, program development, and administrative and clinical supervision roles. In addition to Mr. Peterson's experience within in the field of social services, he has taught both part-time and full-time at other community colleges and universities in the areas of human services, social work, psychology, sociology, and criminal justice.

Dr. Payette's primary treatment area focuses on adolescents with neuro-psychological issues related to family preservation.

Mr. Peterson is currently a doctoral candidate and is in the dissertation process for a Ph.D. in Social Psychology. Additionally, he has attended trainings on suicide prevention, college violence prevention, and pedagogy techniques for adult learners.

Dr. Payette attended the specialty area training in Psychology provided by the AZ Learns program and also attended the sex offense programs provided by TOCC Police Department.

Curtis Peterson, who started August 1, 2017, is getting acclimated to his role and understanding of the social services program at TOCC. This new position will assist the college in developing the future of social services program at TOCC, and recommendations are made later in this document based on his findings. No other significant issues related to faculty or staff members have been made as they relate to the social services program.

Until August 1, 2017, social services courses were taught by adjunct faculty, which has meant limited engagement in activities and self-governance. Since hiring a full-time faculty, social services faculty have been engaged in college committees, faculty senate, and the college community as a whole.

Since hiring a full-time faculty, the instructor is more active in the community by informing employers of social services students to understand community needs, and when appropriate, being involved in community events, especially those at TOCC. Where both the adjunct and full-time faculty are not tribal members, and live outside of the Tohono O'odham Nation, much of their community engagement is through encouraging their students to be engaged in their own communities and to emphasize the importance of community engagement in the field of social services.

A major resource for the program was recently acquired with the hiring of a full-time faculty to take on a leadership role for the development of the social services program. It is expected that as the program grows, resource needs for the program will grow as well.

Provide a calculation, derived by dividing the program's total annual budget by the average annual student credit hours in the program under review.

For FY 2018 program budget was calculated at \$99,280. Average student credit hours per annum for core courses is estimated at 180 credit hours. $\$99,280/180 = \$552/\text{credit}$. These calculations include wages and benefits for the full-time faculty member Curtis Peterson who was hired on in fall semester 2017, adjunct pay and mileage for adjuncts. It is noteworthy that 180 credit hours for a population of 90% Native American generates support from the PL 471, Tribal and Community College Act, of around \$90,000/annum.

Section VII. Recommendations and Preliminary Implementation Plan

A. Provide recommendations for the future of the program based on the results of the self-study.

Upon review of the social services program outcomes, it is recommended that the TOCC curriculum committee consider changing the learning outcomes to align with the National Organization for Human Services (NOHS) and Human Services Board-Certified Practitioner recommendations for Associate degree level education (NOHS

2017). The NOHS provides nationwide certification and practice standards for individuals who are going into the human service (social service) field. By aligning the program outcomes with NOHS standards, it places TOCC's social services program within 2 years of being able to apply to become an accredited education site with NOHS.

1. Recommended Program Outcomes

- Context of delivery of social services: Students will be able to articulate and discuss the historical roots of social services and the development of various social services systems that have led to current conditions within the field that drive decision making about human welfare.
- Social problems and social change: Students will be able to articulate and discuss various human conditions that lead to the need for human services and the delivery of human service programs.
- Professional interpersonal skills: Students will demonstrate the ability to use professional interpersonal skills in order to assist someone seeking social services on the individual and group level.
- Evaluation and Planning. Evaluation: Students will demonstrate the ability to assess the needs of individuals on the micro (client level), mezzo (organization and community level), and macro (policies, cultural, and legal levels) in order to address individual or social problems and create positive social change. Planning: Students will demonstrate the ability to develop a plan of action based on a needs assessment.
- Cultural sensitivity: Students will demonstrate cultural awareness and sensitivity needed to respectfully serve the Tohono O’odham and others in a diverse service population.
- Professional ethics: Students will demonstrate an understanding of the importance of professional ethics and the ability to identify situations in which there may be ethical dilemmas and how to appropriately mitigate them.

2. Recommendations for Growth and Retention

Over the past several years the social services program at TOCC has become focused on aligning course work for transfer to universities for social work. While this is an important milestone in the evolution of the social services program, it leaves other areas of social services educational options out of a consistent program of study. Therefore, based on this review it is recommended that TOCC:

- Develop a social service concentration area in addiction studies that aligns with certification/licensure in alcohol and substance abuse treatment at the Associate degree level, and provides a foundation for continued education in addiction studies.
- Develop a social service concentration area in Behavioral Sciences that aligns with the first two years of a Bachelor’s degree in Psychology and/or Sociology. Not all social services are delivered through a social work degree;

these areas include being a psychologist, a licensed counselor, psych tech, administrator, and a researcher. Whereas the current Associate degree in social services focuses heavily on social work, it is vital to develop a concentration option that allows students to gain employment and further education that are alternatives to social work within social services, or also serves other interests within the broader field of social science such as becoming a social scientist.

- The process of measuring program level outcomes has been carried out by full-time lead faculty member Curtis Peterson, who was hired in fall semester 2017. The process is based on embedded assessment, and two program outcomes were measured during fall semester 2017. A review of the assessment plan for the social services program will be developed by the new faculty member and will be evaluated by the assessment committee and assessment coordinator by the end of spring semester 2018.

3. Recommendations for Strengthening the AASS Program

Four recommendations for strengthening the program follow.

1. Student recruitment: As part of a college-wide goal to have 500 students by 2020, and given the consistent growth of the social services program over the last several years of expansion, it is worth expanding student recruitment efforts by the college.
2. Community partnership and development of practicum opportunities: While there is a need for trained social service providers, because the college lacked a full-time faculty member, community connections have been made on a minimal level. During fall 2017 and spring 2018, the new social services faculty should a) identify community partners and organizations who utilize social service providers; b) develop a relationship with them; c) complete a needs assessment to assure that TOCC is training service providers to meet the community's needs; and, d) start to develop the potential for practicums in the field of addiction to ensure that students have the proper number of supervised hours to be certified at the Associate degree level in drug and alcohol treatment.
3. Student advising: Because social services is such a broad field and students' interests can vary, for the purpose of student retention it is recommended that after a student's first semester at TOCC, all students majoring in social services should be advised by the full-time social services faculty member, who has access to student records to properly assess students' academic progress.
4. Continue to develop transfer relationships with four-year institutions: While aligning social work courses with four-year institutions was an important aspect of the program's development over the past several years, efforts should continue

to align all social services options (i.e. substance abuse, psychology, and sociology) with the four-year institutions. This supports the growth goals set for the college to reach 500 students by 2020. To do this, thoughtful expansion of the social services offerings should be made to meet the diverse educational goals of students and the diverse social service needs of the Tohono O’odham Nation.

B. Describe the potential trajectory and development of the program during the coming four years.

The Tohono O’odham Nation currently has a need for trained social service providers who hold credentials for the delivery of services. Additionally, occupational growth, according to U.S. nationwide and Arizona needs, show a higher (24%) than average (11%) growth in the fields of social work and social services. As the Tohono O’odham Nation expands its responsibilities in education, health care and social services, the need for educated and experienced social work and social services employees will increase over time. TOCC’s AASS is poised to meet those needs.

To meet the demands and needs for social service providers and to meet the college’s goal of having 500 enrolled students by 2020, program development and expansion should be considered carefully, with roll-out of concentration areas and new courses paced in conjunction with enrollment increases.

C. Describe how challenges identified in the self-study will be addressed and provide an estimate of the human, physical, and fiscal resources that will be needed.

One of the challenges that was met during this review process was the hiring of a full-time faculty in August 2017 to move the program forward. The full-time faculty member will meet the challenge to develop an action plan that grows the program in congruency with growth of the college. Another challenge is to continue to work towards meeting the educational and training needs of the Tohono O’odham Nation, while assuring that credit work done at TOCC transfers to four year institutions.

The Institutional Effectiveness department continues to expand its data collection capability, which bodes well for an employer survey to be developed and administered on a regular basis for data-driven decision making for the AASS program.

Section VIII. Informing Stakeholders

Copies of this Program Review will be sent to the President of the Faculty Senate and to the TOCC's President's Cabinet. Both entities will review the completed program review reports to make their own recommendations. Should actions be indicated, the administration will develop an appropriate action plan with the Education Division.



Science Program Review (11/29/2017)

Prepared by:

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I. Introduction

Program Description

The Science program consists of one Associate of Science in Life Sciences degree and one Associate of Applied science degree. The A.S. in Life Science degree emphasizes thorough preparation of students who plan to transfer to four-year colleges and universities after they graduate from TOCC. The A.S. in Life Science program requires 60 credit hours of work to receive the degree, including 7 units in Tohono O'odham language and history, 6 units of writing composition courses, 6 additional units in the humanities, a 3-unit course in Social and Behavioral Sciences, and 5 units of math credit for Calculus 1 or higher. The program requires core courses in biology, including Unity of Life I and II (BIO 181N and 182N) and Environmental Biology (BIO 105N). It currently includes three options within the degree:

- The Interdisciplinary Open Pathway requires core courses in Global Change Biology (BIO 154N), Tohono O'odham Ethnobotany (BIO 208N), options from electives, and capstone course featuring either a research project or an internship in a relevant field. This is a general Life Science degree for students planning to pursue four-year Life Science degrees.
- The Natural Resources option offers students the options to select courses to meet core requirements focusing on 1) plants, 2) soil or water, and 3) animals, along with a capstone research project and field internship. This option is designed to support students transferring to four-year Natural Resource programs at one of the three Arizona universities.
- The Agriculture option includes coursework in agriculture, soil science, and water resources in order to prepare students to transfer to a four-year program at one of the three Arizona universities.

- The Studies in Indigenous Borderlands option has core requirements in environmental sciences that relate and apply to Indigenous issues in international borderlands. This option prepares students to study human-environment issues along the U.S.-Mexico border as well as other borders around the world.
- The Health Science option is designed for students transferring to any of the three state universities in the areas of public health, allied health and degrees to prepare for further study in medicine and pharmacy.

The Science program also has an Associate of Applied Science (AAS) degree in Environmental Studies in Indigenous Borderlands. This program provides students with practical and theoretical coursework and emphasizes Tohono O’odham and arid lands. Upon graduation, students will most likely enter the workforce at the technician level.

These degree programs efficiently and coordinately prepare students for careers in agriculture, natural resources, and life sciences. Instituted on Himdag values, students are introduced to an understanding of the process of science discovery and sustainability. Science faculty is committed to innovation and excellence in our programs, and to prepare students to be successful in science-related careers that are vital for meeting future Tohono O’odham and national emands.

At the core of the learning experience for science students are internships, field experiences, and community involvement. The science program works closely in partnership with our TOCC partners--Land Grant Office of Sustainability (LGOS) and Title III as well as with many off-campus partners such as departments on the Tohono O’odham Nation and regional universities and organizations. In this science program, unique and innovative instructional strategies are integrated into the Himdag strengthening core values with the goal of preparing our students to face the current and future challenges.

Program History

The Associate of Science degree was originally listed in the 2000-2002 TOCC College Catalog and was one of the programs originally under Pima Community College (PCC) at this time. In 2005, the first full-time faculty member in science was hired to develop the science program with the following goals: 1) develop the program so that it was more fully in alignment with the unique mission of the TOCC 2) develop the lab facilities and infrastructure required to teach the lab-loaded courses and 3) recruit and retain students in the sciences at TOCC. Initial development focused on modifying the courses in the original catalog to be more culturally-relevant, to incorporate the Himdag and to employ strategies, techniques, and principles of indigenous education.

In 2010 and 2012, respectively, two unique interdisciplinary courses were designed in order to incorporate place-based, traditional ecological knowledge in areas of high importance—BIO 154N Global Change Biology and BIO 208N Tohono O’odham Ethnobotany. In addition, courses were developed to strengthen the Agriculture and Natural Resources offerings under the A.A.S. in Agriculture and Natural Resources such ANR 186N Water Resources, ANR

111N Agroecology, ANR 128N Plant Ecology and ANR 221N Soil Science. Since its inception, the science program has undergone a continual review of curriculum and assessment of PLO's as follows:

AY 2009-2010 Curriculum & Assessment

Program modification

- Expanded to include two options: Life Science and Tohono O'odham Agriculture and Natural Resource

New Courses

- Addition of capstone classes—BIO 298 Service Learning and BIO 299 Research Capstone

Assessment

- Program level outcomes and curriculum map

AY 2013-2014 Curriculum & Assessment

Program modification

- Modification of AGECS to require BIO 105N for all A.S. Science majors in order to give students a foundational class for all other science courses, to create a cohort model for science majors and to facilitate program level assessment.
- Reduced the number of electives required in order to only 60 credits

Course modification

- Modification of ANR 186 to ANR 186N lab-loaded class in order to fulfill AGECS requirements for lab-loaded classes

AY 2014-2015 Curriculum Review

New program:

- A.A.S. Environmental Studies in Indigenous Studies

Program Modification

- Associate of Science Program—name change to Associate of Science—Life Sciences
- A.S. Life—Option III added "Studies in Indigenous Studies"; Option I changed from "Life Science" to Interdisciplinary Open Pathways

New Courses:

New courses for science courses for AS-LS with SIB option and AAS in ESIB:

- GEO 205N: Geography of the Borderlands
- ANR 225N: Environmental Issues and Conservation in the US-Mexico Borderlands

Assessment

- Program level assessment of two program level outcomes completed (see Appendix A)

AY 2015-2016 Curriculum & Assessment

Program Deactivation:

- A.A.S. Agriculture and Natural Resources

Program Modification

- Associate of Life Science Program—Agriculture and Natural Resources split into two options making the following four options:
- Option I: Interdisciplinary Open Pathway
- Option II: Agriculture
- Option III: Studies in Indigenous Borderlands
- Option IV: Natural Resources

Course modifications:

- All pre-requisites for science courses reviewed and updated

Assessment

- Adoption of the Man In the Maze Indigenous Education model for program level assessment

AY 2016-2017 Curriculum & Assessment

Program Modification

- Associate of Life Science Program—Agriculture and Natural Resources split into two options making the following four options:
- Option I: Interdisciplinary Open Pathway
- Option II: Agriculture
- Option III: Studies in Indigenous Borderlands
- Option IV: Natural Resources
- Option V: Health Science

New Courses:

New courses for science courses for Health Science option:

- CHM 151N: Fundamentals of Chemistry I
- CHM 152N: Fundamentals of Chemistry II
- PHY 121N: Introductory Physics I

Special Applications or Requirements

There are no special application processes or requirement for this program beyond students being required to take Core courses to complete the program's credit requirements. All students must complete their AGEC-S and the Himdag requirements before graduating.

All Required Courses

Associate Science in Life Science

Section I. General Education requirements		
NOTE: Completion of requirements in this section satisfies AGEC-S transfer requirements		
General Education	Course	Credits
Tohono O'odham Himdag	HIS 122 Tohono O'odham History and Culture	3
	THO 101 Elementary Tohono O'odham or THO 106 Conversational Tohono O'odham I	4
Composition	WRT 101 Writing I	3
	WRT 102 Writing II	3
Math	MAT 220 Calculus I or higher	5
Humanities and Fine Arts	Any AGEC approved ART course	3
	Any HIS, LIT, PHI, ANT, WRT 297 or WRT 298 or any Languages	3
Social and Behavioral Sciences	Any ECN, HIS, POS, PSY, SSE, or SOC or GEO 103* GEO 103 for AS-SIB Concentration	3
Biological Sciences Core	BIO 181N Unity of Life I	4
	BIO 182N Unity of Life II	4
Other Requirements	BIO 105N Environmental Biology	4
	TOTAL CREDITS – GENERAL EDUCATION	39

OPTION I: Open Pathway Interdisciplinary Concentration (AS-LS-OP)

Section II. Core requirements		
Core requirements	Course	Credits
	BIO 154N-Global Change Biology	4
	BIO 208N Tohono O'odham Ethnobotany	4
	BIO 298 Capstone-Service Learning/Field Internship	1
	BIO 299 Capstone-Research Project	1
	TOTAL CREDITS - CORE REQUIREMENTS	10
Section III. Electives		
Electives	Course	Credits
Any course numbered 100 or above and with the following prefixes: ANR, AST, BIO, CHM, GEO, GLG, PHY Any MAT course higher than 220		
	TOTAL CREDITS - ELECTIVES (to complete 60 credit minimum)	11

OPTION II: Natural Resources Concentration (AS-LS-NR)

Section II. Core requirements		
Core requirements	Course	Credits
	BIO 128N Plant Ecology of the Sonoran Desert or BIO 208N Tohono O'odham Ethnobotany	4
	ANR 186N Water Resources	4
	ANR 190N Wildlife Conservation	4
	ANR 298 Capstone-Service Learning/Field Internship	1
	ANR 299 Capstone-Research Project	1
	TOTAL CREDITS - CORE REQUIREMENTS	14
Section III. Electives		
Electives	Course	Credits
Any course numbered 100 or above and with the following prefixes: ANR, AST, BIO, CHM, GEO, GLG, PHY Any MAT course higher than 220		
	TOTAL CREDITS – ELECTIVES (to complete 60 credit minimum)	7

OPTION III: Studies Indigenous Borderlands Concentration (AS-LS-SIB)

Section II. Core Requirements		
Core requirements	Course	Credits
	ANR 190N Wildlife Conservation	4
	ANR 225N Environmental Issues in the Borderlands	4
	BIO 154N Global Change Biology	4
	GEO 205N Geography of the Borderlands	4
	SIB 298 Capstone-Service Learning/Field Internship	1
	SIB 299 Capstone-Research Project	1
	TOTAL CREDITS - CORE REQUIREMENTS	18
Section III. Electives		
Electives Any course numbered 100 or above and with the following prefixes: ANR, AST, BIO, CHM, GEO, GLG, PHY Any MAT course higher than 220	Course	Credits
	TOTAL CREDITS – ELECTIVES (to complete 60 credit minimum)	7

OPTION IV: Agriculture Concentration (AS- LS-AG)

Section II. Core requirements		
Core requirements	Course	Credits
	ANR 111N Agroecology and Tohono O’odham Crop Production	4
	ANR 186N Water Resources or GEO 101N Physical Geography: Weather and Climate	4
	ANR 221N Soil Science	4
	BIO 208N Tohono O’odham Ethnobotany or ANR 130N Plant Science	4
	ANR 298 Capstone-Service Learning/Field Internship	1
	ANR 299 Capstone-Research Project	1
		TOTAL CREDITS – CORE REQUIREMENTS
Section III. Electives		
Electives Any course numbered 100 or above and with the following prefixes: ANR, AST, BIO, CHM, GEO, GLG, PHY, or any MAT course higher than 220	Course	Credits
	TOTAL CREDITS - ELECTIVES (to complete 60 credit minimum)	3

OPTION V: Health Science (AS-LS-HS)

Section II. Core requirements – (21 Credits)		
Core requirements	Course	Credits
	CHEM 151N- General Chemistry I	5
	CHEM 152N-General Chemistry II	5
	PHYS 121N—Introductory Physics I	5
	BIO 160N Intro to Anatomy or BIO 127N Human Nutrition or BIO 208N Tohono O’odham Ethnobotany (<i>includes units on nutrition & use of traditional plants on health and diabetes prevention</i>)	4
	BIO 298 Capstone-Service Learning/Field Internship	1
	BIO 299 Capstone-Research Project	1

TOTAL MINIMUM CREDITS FOR ALL SCIENCE PROGRAMS: 60

Associate in Applied Science – Environmental Studies in Indigenous Borderlands

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
English Composition	WRT 101 Writing I	3
	WRT 102 Writing II	3
Math & Computer Science	MAT 122 Intermediate Algebra	3
	GEO 267 Introduction to GIS	3
Humanities & Fine Arts	Any ART Course	3
	THO 101 meets this requirement	N/A
	PHI 101 Introduction to Philosophy	3
Social & Behavioral Science	HIS 122 meets this requirement	N/A
	PSY 101 Introduction to Psychology or SOC 101 Introduction to Sociology	3
	ECN 202 Macroeconomic Principles	3
Two Lab-loaded Science Courses “N” designation		4
		4
TOTAL CREDITS - GENERAL EDUCATION		36
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core requirements. Strongly recommended: 2.75 GPA in SSE and SWU classes	CIS 100 Introduction to Computers	3
	SWU 171 Introduction to Social Work	3
	SSE 121 Introduction to Substance Abuse	3
	SWU 291 Social Service Delivery Systems	3
	SWU 295 Foundations of Social Work Practice: Effective Helping in a Diverse World	3
	POS 110 American National Government	3
TOTAL CREDITS - CORE REQUIREMENTS		18
Section III. Electives		
Fulfill Requirements	Course	Credits Required
Free electives – 6 credits	Any electives	6
TOTAL CREDITS - ELECTIVES		6
TOTAL CREDIT HOURS		60

AGEC AAS		
Composition	WRT 101 Writing I	3
	WRT 102 Writing II	3
Math & Computer Science	MAT 122 Intermediate Algebra	3
	GEO 267 Introduction to GIS	3
Humanities and Fine Arts – 6 credits	ART 115 3-D Design	3
	WRT 287 Beginning Creative Writing Workshop in Fiction or WRT 288 Beginning Creative Writing Workshop in Poetry	3
Social and Behavioral Science –6 credits -	COM 263 Intercultural Communication	3
	HIS 122 Tohono O’odham History and Culture I	3
Natural Science 4 credits	BIO 105N Environment Biology	4
Core		
	GEO 205N Geography of the Borderlands	4
	GEO 103 Cultural Geography	3
	BIO 154N Global Change Biology	4
	BIO 109N Natural History of the Southwest or ANR 128N Plant Ecology of the Sonoran Desert	4
	ANR 186N Water Resources	4
	GLG 101N Introductory Geology I: Physical Geology	4
	ANR 225N Environmental Issues and Conservation in the US-Mexico Borderlands	4
	ANR 190N Wildlife Conservation	4
	SIB 298 Capstone	1
Himdag Req.	*THO 101 Elementary Tohono O’odham I	4
*Required Tohono O’odham Himdag course		
	Total Units	61

Below is a complete list of science courses in the TOCC course bank along with their AGEC special requirement designation:

	AGEC Course	I (Intensive Writing & Critical Inquiry)	Cultural	Global
ANR 111N Agroecology and Tohono O'odham Crop Production	YES	X	X	
ANR 128N Plant Ecology of the Sonoran Region				
ANR 130N Plant Science		X		X
ANR 186N Water Resources	YES			
ANR 190N Wildlife Conservation	YES			
ANR 210N Range Conservation				
ANR 221N Soil Science				
ANR 225N Environmental Issues and Conservation in the US-Mexico Borderlands	YES		X	X
ANR 298 Service Learning Capstone				
ANR 299 Research Capstone				
AST 101N Solar System	YES			
AST 102N Stars, Galaxies Universe	YES			
BIO 100N Biology Concepts	YES	X		X
BIO 105N Environmental Biology	YES	X	X	X
BIO 108N Plants, People, and Culture	YES			
BIO 109N Natural History of the Southwest	YES	X		
BIO 127N Human Nutrition and Biology	YES			
BIO 154N Global Change Biology	YES	X	X	X
BIO 160N Intro to Human Anatomy and Physiology I	YES			
BIO 181N Unity of Life I: Life of the Cell				
BIO 182N Unity of Life II: Multicellular Organisms				
BIO 184N Plant Biology	YES			
BIO 208N Tohono O'odham Ethnobotany	YES		X	
BIO 298 Service Learning Capstone				

BIO 299 Research Capstone				
(Continued)	AGEC Course	I (Intensive Writing & Critical Inquiry)	Cultural	Global
CHM 130N Fundamental Chemistry	YES			
CHM 151N General Chemistry I	YES			
CHM 152N General Chemistry II	YES			
GEO 101N Weather and Climate	YES	X		X
GEO 267 Introduction to Geographic Information (GIS) Systems				
GLG 101 Introductory Geology I: Physical Geology	YES			
PHY 122N Introductory Physics I	YES			

II. Program Learning Outcomes, Curriculum, and Instruction

All of the science courses in the A.S. Life Science degree and A.A.S. Environmental Studies in Indigenous Borderlands courses have learning outcomes as described in their syllabi and course content forms.

Describe the process used to evaluate those outcomes:

- Post-test, signature assignments, formative and summative evaluation
- Observations, performance-based measures

Below is a summary of the grade outcome data for courses:

Science Courses for 2012-2016		
Course	Grade	Grand Total
ANR 111N 1 Agroecology and Tohono O'odham Crop Production	A	12
	B	1
	C	3
ANR 128N 1 Plant Ecology of the Sonoran Region	A	2
	B	5
	C	2
	D	2
	F	3
ANR 130N 1 (Plant Science)	A	7
ANR 186N 1	A	9

Water Resources	B	6
	C	3
Science Courses for 2012-2016 (continued)		
Course	Grade	Grand Total
	D	1
	F	1
ANR 190N 1	A	17
Wildlife Conservation	B	5
	C	2
ANR 298 1	A	1
Capstone: Service Learning	C	1
ANR 299 1	A	1
Capstone: Research Project	C	1
AST 101N 1	A	2
Solar System	B	3
	C	3
	D	3
	F	1
AST 102N 1	B	1
Stars, Galaxies, Universe	C	6
	D	4
	F	2
BIO 100N 1	A	44
Biology Concepts	B	32
	C	12
	D	1
	F	1
BIO 105N 1	A	22
Environmental Biology	B	30
	C	11
	D	1
	F	6
BIO 109N 1	A	18
Natural History of the Southwest	B	14
	C	4
	D	1
	F	2
BIO 154N 1	A	13

Global Change Biology	B	14
	C	8
	F	3
Science Courses for 2012-2016 (continued)		
Course	Grade	Grand Total
BIO 181N 1	A	4
Unity of Life I: Life of the Cell	B	19
BIO 182N 1	A	7
Unity of Life I: Multicellular Organisms	B	4
	C	6
	D	1
	F	2
BIO 208N 1	A	10
Tohono O'odham Ethnobotany	B	3
	C	2
BIO 298 1	A	8
Capstone: Service Learning	B	2
BIO 299 1	A	5
Capstone: Research Project	B	1
	C	2
CHM 080 1	A	11
Preparation for General Chemistry	B	13
	C	5
	F	1
GEO 101N 1	A	6
Physical Geography: Weather & Climate	B	2
	C	4
	D	1
	F	1
Outcome Data Total		467

The data indicated that out of the 467 students who enrolled and completed science courses, the majority of students had successful outcomes in the various courses attempted from 2012 – 2016. Over 92% of the students passed their courses with a C or better. Over 86% got A's or B's. Since the Science Program serves non-major students fulfilling their AGEC requirements and electives as well as A.S. Life Science majors, we also did the analysis looking at courses only required by science majors: BIO 181N, BIO 182N, BIO 298, BIO 299, ANR 298 and ANR 299. The data indicated that out of the 65 students who enrolled and completed science courses, the

vast majority of students had successful outcomes in the various courses attempted from 2012 – 2016. Over 95% of the students passed their courses with a C or better and 80% got A's or B's.

Program Level Assessment

Program level assessment for the Science program presents a unique challenge because it must not only measure student attainment of Western knowledge and skills, but must also include a measure of mastery in cultural knowledge. Since 2009, program level assessment has included the adoption of program level outcomes to measure student success in applying and understanding the T-So:son cultural core values based on the Himdag, with a particular focus on PLO # 3. PLO #3 is “Students will be able to display a sense of place,” and this is assessed during a Service Learning Course where students need to demonstrate knowledge of health and environmental issues on the Nation, engage in a solution to the problem using T-So:son, and reflect on their experience of service learning. While this effort was successful, the Lead Science Faculty thought that a more comprehensive approach was needed to adequately measure the enhancement of the unique Tohono O’odham Himdag in our programs. Thus, the science faculty, in collaboration with a Tohono O’odham elder and support from AIHEC’s Indigenous Evaluation Framework project, created the Indigenous Evaluation framework based on the Man in the Maze for program level assessment. Below is an example of that assessment model:

OPTION V— Health Science		CORE COURSES						
OUTCOMES		BIO 105N	BIO 181N	BIO 182N	CHM 151N	BIO 160N/208N/127N	BIO 298	BIO 299
1	Demonstrate knowledge of scientific concepts & vocabulary	I		R1	R2			A
2	Design and conduct a research project	I	R1					A
3	Display a sense of place	I, R1				R2	A	
4	Apply critical and creative thinking skills to solve problems	I		R1	R2			A

The Man in the Maze Model

This indigenous education model is framed on the wisdom regarding personal transformation and learning inherent in the cultural symbol “The Man in the Maze.” The “Man in the Maze” represents a person’s journey through life and reaching for one’s dreams. As explained by the elders, a person moves to the center of the Maze during major life transitions and receives inspiration and transformation only to move further outward for the next cycle of the journey. In applying this to the A.S. Life Science program assessment, each journey through the maze and into the center represents a level of learning and an assessment or evaluation and reflection on learning. The first journey represents knowledge gathering while each successive journey gathers more knowledge with the final journey delving more deeply into the problem or subject area. Since each journey represents a succession in one’s life, this can be related to Bloom’s taxonomy in the following way:

- First assessment: Knowledge
- Second assessment: Understanding
- Third assessment: Application

- Fourth assessment: Analyzing/Evaluating/Creating

Using this model, the curriculum map for the A.S. Life Science program should be as follows:

Table 1. Program level application of the Man in the Maze Education Model

Journey	Curriculum	Learning	True Self
First journey	Introduction of PLOs	Assessment at Knowledge Level (I)	Student self-assessment 1: Identify goals, timeline, and obstacles.
Second journey	Reinforcement of PLOs	Assessment of Understanding (R1)	Student self-assessment 2: Honest check-in and re-evaluation.
Third journey	Reinforcement of PLOs	Assessment for Application of Knowledge (R2)	Student self-assessment 3: Honest check-in and re-evaluation.
Fourth journey	Create something of value using knowledge gained and shared with community	Assessment for PLOs (A): analysis, evaluation, and synthesis.	Student self-assessment 4: Celebration of knowledge and completion of the journey; reflection on service to the community.

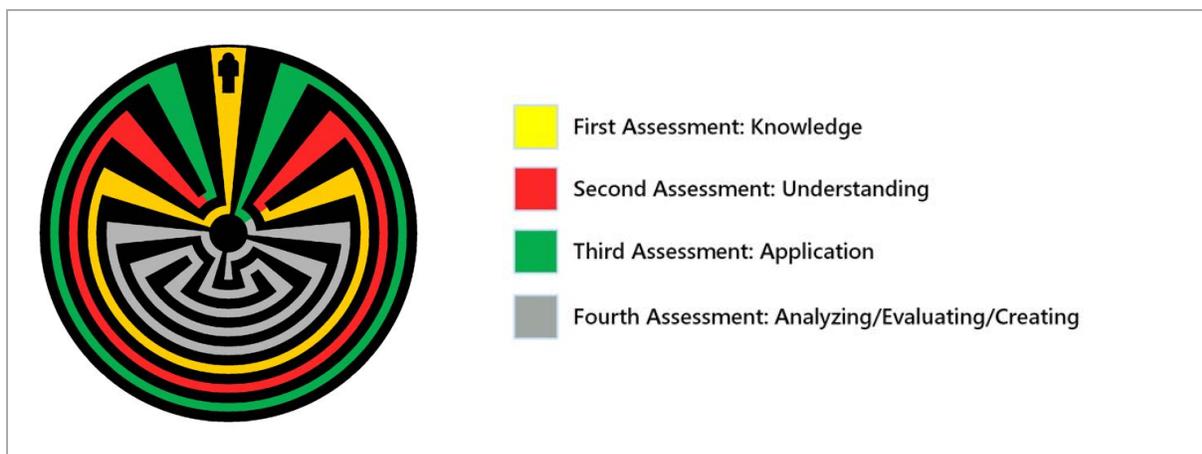


Figure 2. Indigenous education model derived from *The Man in the Maze*.

The results of the initial assessment of the program level outcomes (PLOs) for the Associate of Science in Life Sciences program (see Appendix A) revealed that although the students successfully demonstrated the ability to design and conduct a research project, they need improvement in the specific areas of writing an abstract and conclusion. In order to improve student performance in these two areas, students will be given additional practice in BIO

105N in the Desert Ecology Project where this PLO is introduced and in BIO 181N in the Diffusion Lab where this PLO is reinforced.

The data also showed that students need some minor improvement to display a sense of place as determined by performance in the Service Learning Project. The weakest area for the students was in the area of problem identification with the target being:

- Demonstrates the ability to construct a clear problem statement with evidence of a good understanding of the health or environmental issues on the Tohono O'odham Nation including most relevant contextual factors.

The average score in this area was 58% which falls into the "Fair" category on the scoring rubric. In order to improve students' performance for this metric, an increased focus on problem identification will be included in the Capstone course and be addressed through the incorporation of problem-based learning throughout our curriculum as described below.

In order to increase the students' academic success, specifically in the area of critical thinking and problem-solving, we implemented culturally-relevant, evidence-based teaching and learning practices associated with the problem-based learning model (PBL) in STEM courses beginning in fall 2015. These PBL units were developed using an indigenous education model and framework based on the cultural symbol the "Man in the Maze" which represents a person's journey through life and reaching for one's dreams. These PBL units focused around the theme of "Sustainability through Life in Balance" by incorporating environmental sustainability, health, and well-being. The PBL units were infused with the unifying theme of sustainability and the four TOCC core values of T-apedag (health), T-pik-elida (respect), I-wem:ta (teamwork) and T-wohocududag (spirituality).

We incorporated our PBL units into five courses: BIO 100N Biological Concepts, BIO 105N Environmental Biology, BIO 154N Global Change Biology, BIO 181N Unity of Life I and MATH 220 Calculus I. During the 2015-2016 academic year, 7 courses incorporated PBL units impacting a total of 55 students. Based on the results of our evaluation, the PBL units designed using the Man In the Maze educational model have increased student success in Math and Science in all of the following areas: Understanding scientific and mathematical concepts, Improving Understanding of the Core Values, Improving Attitudes toward Math and Science, and Integration of Learning into daily life (see Figure 1). In addition, the average pass rates of students were 99% and we achieved a student attendance rate of 95%. We are continuing the PBL approach throughout our STEM program by continuing to incorporate these PBL units in our courses in the 2016-2018 academic year monitoring its impact on student learning and refining our approaches.

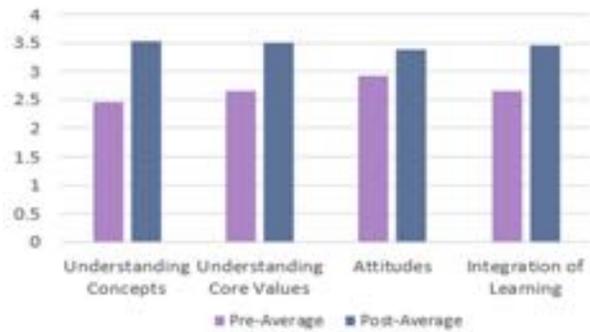


Figure 1. Results from project incorporating PBL in STEM courses in 2015-2016.

The following is an up-to-date list of courses including prerequisites:

Course	Description	Prerequisites	Credits
ANR 102N: Animal Science	This class will cover fundamental principles of animal, dairy, equine and poultry science, with a focus on production, marketing, and distribution. Livestock management practices, culture, and history unique to Indian country will also be discussed.	MAT 092, BIO 100N, or 1-year high school biology, or signature of instructor	3
ANR 111N: Agroecology and Tohono O'odham Crop Production	This course combines classroom and fieldwork to learn about traditional and commercial vegetable and grain crop production. Topics include Tohono O'odham agricultural history, crop, soil, pest, nutrient, and weed management, cover cropping, composting, seeding, transplanting, irrigation, harvesting, and marketing. Organic production is emphasized since traditional Tohono O'odham agriculture has always been organic, and does not use synthetic fertilizers and pesticides. The lab portion of the class is three hours of hands-on learning at the TOCC oidag (field) at TOCC's West Campus.	None	4

ANR 128N: Plant Ecology of the Sonoran Region	This course will cover the fundamentals of ecology from the perspective of plants including population, community and ecosystem ecology. This course will also include identification and classification of plants and plant communities in the diverse Sonoran Desert region. This course incorporates practical field exercises designed to acquaint the student with plant community analysis, classification and description.	Completion of BIO 105N or signature of instructor	4
ANR 130N: Plant Science	Introduces the principles of plant growth, development, reproduction, and structure of vascular plants at the cellular, organism and ecosystem levels. Addresses plant growth in the context of climatic and environmental influences, with global and evolutionary patterns, considered. Emphasis on traditional crops and woody plants of Southern Arizona.	Recommended CHM 080 or 1- year high school chemistry and ANR 111N Agroecology and Tohono O’odham Crop Production	4
ANR 186N: Water Resources	Provides a basic understanding of the hydrological cycle and an overview of the processes that control water supplies to natural ecosystems and humans, giving students the knowledge they need to participate in informed decisions about water resources. The course emphasizes information and activities that are useful in the practice of agriculture and water conservation, including an introduction to rainwater harvesting principles. When possible, these topics will be addressed using examples relevant to the Tohono O’odham Nation.	Math 092 (Elementary Algebra)	4

ANR 190N: Wildlife Conservation	An introduction to the ecology, conservation, and management of wildlife populations. Students will learn a variety of tools to apply ecological knowledge balanced on the needs of animals with those of people. Topics will cover history, philosophy, inventory, planning, management, and Tohono O'odham wildlife concepts.	Completion of BIO 105N or signature of instructor	4
ANR 210N: Range Conservation	This is an introductory course exploring the diversity of rangelands on a local, regional, and global scale. The course will cover principles of rangeland ecology and grazing management, and will take a critical look at management applicability under a variety of rangeland ecosystems, especially in the arid Southwestern United States. The importance of rangelands in Tohono O'odham life will also be covered. The class will include at least one field trip as identified by the instructor.	BIO 105N and ANR 190N or signature of instructor	3
ANR 221N: Soil Science	Fundamental principles of soil science, including the origin, nature, and classification of soils, emphasizing the chemical, physical, and biological properties in relation to growth and nutrition of plants. Useful for anyone interested in water resources, agriculture, ecology, engineering, environmental restoration, and any number of other environmental sciences. Lecture and lab are integrated in this class.	CHM 80 or 1 year of high school chemistry, completion of BIO 105N or signature of instructor	4

ANR 225N: Environmental Issues and Conservation in the US-Mexico Borderlands	This course will explore current environmental issues and challenges in the US-Mexico border region. Due to the importance for the Tohono O'odham community, the course will focus on environmental issues of the Southwest's borderland that have implications in Tohono O'odham communities' environment.	Any two of the following: GEO 267: Introduction to GIS, BIO 105N Environmental Biology, or ANR 190N Wildlife Conservation	4
ANR 298: Capstone- Service Learning Capstone	This is a capstone course which allows the student to gain experience by completing a service learning project related to the concentration the student is pursuing within the field of science. Coordinated by faculty and community or institutional partners, this course places students in a service-learning position where the student can apply their knowledge and skills in real-world contexts. The student participates in the service learning project supervised by a faculty member and, in some cases, a supervisor in the field.	Declared major in A.S. Life Science Agriculture or National Resource Option or completion of most AGEC and degree coursework in the A.S. degree program and permission of instructor.	1
ANR 299: Capstone- Research Project	This capstone course provides science majors the opportunity to examine a specific topic related to the concentration the student is pursuing within the field of science. This work will culminate in the production of a thesis-style research paper or research proposal. Utilization of professional literature, both printed and electronic, will be required during the research process. Completion of this project will incorporate communication skills, knowledge of the process of science and synthesis of scientific knowledge.	Declared major in A.S. Life Science Agriculture or Natural Resources Option, completion of most AGEC and degree coursework in the A.S. degree program and permission of instructor.	1

BIO 100N: Biology Concepts	Basic principles and concepts of biology. Includes methods of scientific inquiry, cell structure, chemistry, metabolism, reproduction, genetics, molecular biology, evolution, ecology, and current issues in biology. Lecture and lab are taught simultaneously.	None	4
BIO 105N: Environmental Biology	Fundamentals of ecology and their relevance to human impact on natural ecosystems. Includes ecosystem structure and function, population dynamics, and human impacts on air, water, land, and biodiversity. Lecture and lab are taught simultaneously.	None	4
BIO 108N: Plants, People, & Culture	Study of human use of plants integrating historical and cultural perspectives with present-day applications. Includes the importance of plants in the environment and plant function as it relates to human society. Also includes patent medicines, herbal remedies, and origins of agriculture, food and fiber crops, and the production of alcoholic beverages. Lecture and lab are integrated in this class.	None	4
BIO 109N: Natural History of the Southwest	Study of the common plants and animals of the Southwest. Includes their identification, adaptations, behavior, and ecology. Also includes physical geography and geological principles of the region. In this course the lecture and lab are taught simultaneously.	None	4

<p>BIO 127N: Human Nutrition and Biology</p>	<p>Principles of nutrition presented in the context of human biology. Includes chemistry, digestion, absorption, and metabolism of nutrients. Also includes biological and nutritional perspectives on various health issues such as cardiovascular disease, hypertension, cancer, diabetes, and osteoporosis. Lecture and lab are integrated in this class.</p>	None	4
<p>BIO 154N: Global Change Biology</p>	<p>Global change biology is a new field of biology which explores the consequences of global environmental change on humans and ecosystems. This course focuses on climate change as a key driver of environmental change. Climate change is addressed by exploring causes of past and current climate change while providing a strong contextual setting for Native American students based on their own culture and traditional ecological knowledge. Lecture and lab are integrated in this class.</p>	<p>Assessment or completion of WRT 101; Completion of BIO 105N or signature of instructor</p>	4
<p>BIO 160N: Intro to Human Anatomy and Physiology I</p>	<p>Structure and dynamics of the human body. Includes foundations such as chemical, cellular and tissue levels of organization. Also includes major structures and functions of integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, lymphatic, respiratory, digestive, urinary, and reproductive systems. Lecture and lab are integrated in this class.</p>	None	4

<p>BIO 181N: Unity of Life I: Life of the Cell</p>	<p>This is an introductory course for biology majors with an emphasis on the unifying molecular and cellular principles of all life on earth. It covers the principles of structure and function of living things at the molecular, cellular and organismic levels of organization, including an introduction to the scientific process, scientific measurements and laboratory techniques, chemistry and organization of cells, metabolism, patterns of cell division, patterns of inheritance, nucleic acids, and biotechnology. Lecture and lab are integrated in this class.</p>	<p>1 year of high school Biology or BIO 100N; 1 year of high school Chemistry or CHM 80. Assessment at or completion of WRT 101 or signature of instructor.</p>	4
<p>BIO 182N: Unity of Life II: Multicellular Organisms</p>	<p>This course is a survey of the principles of structure and function of living things at cellular, organism, and higher levels of organization. Topics include the evolution, classification, diversity and ecology of organisms, structure and function of plants and animals, structure of ecosystems and the biosphere. This course will emphasize holistic perspectives of life emphasizing the unity within the diversity of life, the inter-relatedness of all living organisms and the greater context for biological science. Lecture and lab are integrated in this class.</p>	<p>1 year of high school Biology or BIO 100N; 1 year of high school Chemistry or CHM 80. Assessment at or completion of WRT 101 or instructor signature.</p>	4
<p>BIO 184N: Plant Biology</p>	<p>Study of principles and processes in plant biology with emphasis on vascular plants. Includes survey of plant kingdom. Lab and lecture are integrated in this class.</p>	None	4

BIO 208N: Tohono O’odham Ethnobotany	<p>This course covers basic principles of botany, plant ecology and the diversity of ways in which plants and the uses of plants have shaped cultural and historical developments of the Tohono O’odham. In this course, students will learn the fundamentals of plant classification and identification including the Tohono O’odham names of plants. Students will learn about the traditional uses of plants and their role in health and nutrition. They will learn about traditional plant harvesting methods as well as traditional and modern practices in plant cultivation. Students will also learn about the critical roles that plants play in the modern world and into a sustainable future.</p>	<p>AGEC-level science class or signature of the instructor</p>	4
BIO 298: Service Learning Capstone	<p>This capstone course allows the student to gain experience by completing a service learning project related to the student’s science concentration. Coordinated and supervised by faculty and/or community or institutional partners, students are placed in a service learning position where the student applies their knowledge and skills in real-world contexts.</p>	<p>Declared major in A.S. Life Science Open Pathway Option, completion of most AGEC and degree coursework in the A.S. degree program and permission of instructor.</p>	1
BIO 299: Research Capstone	<p>This capstone course allows science majors to examine a specific topic related to the student’s science concentration. The student will produce a thesis-style research paper or research proposal. Use of printed and electronic professional literature will be required during the research process. Completion of this project will incorporate communication skills, knowledge of the process of science and synthesis of scientific knowledge.</p>	<p>Declared major in A.S. Life Science Open Pathway Option, completion of most AGEC and degree coursework in the A.S. degree program and permission of instructor.</p>	1

CHM 080: Preparation for General Chemistry	Fundamentals of chemistry. Includes nomenclature, atomic structure, bonding, chemical equations, moles, stoichiometry, the periodic table, conversions, problem-solving techniques and study skills. Designed to prepare students for college-level chemistry.	MAT 092	3
CHM 130N: Fundamental Chemistry	Inorganic chemistry as a basis for the study of some life processes. Includes the classification, structure, and general chemical behavior of inorganic matter.	MAT 092 with a C or better or required score on mathematics assessment test	4
CHM 151N: General Chemistry I	This integrated lecture-lab course is designed to develop a basic understanding of the central principles of chemistry that are useful to explain and predict the properties of chemical substances based on their atomic and molecular structure. Topics covered include atomic structure, chemical bonding, reaction stoichiometry, behavior of gases, and reactions in solutions, and thermochemistry. Additionally, students will be introduced to modern laboratory techniques and participate in experimental activities that promote the development of basic and advanced science-process skills. The course is designed for students who require a strong foundation in general chemistry, such as science and engineering majors, pre-medical and pre-pharmacy students.	With a grade of C or better: MAT 151 or 188 or higher and either CHM 80 or CHM 130N or 1 year of high school chemistry	5
CHM 152N: General Chemistry II	This integrated lecture-lab course is a continuation of CHM 151N Fundamentals of Chemistry I. This course includes topics such as chemical kinetics, spontaneity of chemical change, chemical equilibrium, precipitation reactions, acid and base equilibria, complex ions, oxidation-reduction reactions, and	With a grade of C or better: MAT 151 or 188 and CHM 151N	5

nuclear reactions.

GEO 101N: Physical Geography: Weather Climate	Introduction to the physical elements. Includes weather, climate, vegetation, and soils, and also their importance to humans, their interrelationships, resulting patterns, and effects. Lecture and lab are integrated in this class.	None	4
GEO 103: Cultural Geography	Examination of the human world from a geographic perspective. Includes an exploration of global issues such as population, food supply, geopolitics, and urbanization. Also includes industrialization as seen in the special combination of cultural, physical, historical, economic, and organizational qualities imprinted on the landscapes of the world.	Assessment at or completion of WRT 101 or signature of instructor.	3
GEO 205N: Geography of the Borderlands	This course will use a geographical approach to study human-environmental systems in the borderland regions, with special emphasis on the U.S.-Mexico border and comparative Indigenous case studies. We will look at the socio-political and economic systems that are produced by human communities and how different societies use the borderland landscape for a series of political conflicts over space and culture. Some of the theoretical concepts we will analyze are: the settler state, sovereignty, territory, borders, nation, international law and environment.	GEO 103 Cultural Geography	4

GEO 267: Introduction to Geographic Information Systems (GIS)	This course teaches students ways to capture, store, retrieve, analyze and display geographic data in different formats and outputs. Includes the evolution of GIS technology, system components, database concepts, system integration and its application across a wide range of science, business, government and nonprofit agencies.	Basic computer skills recommended and instructor permission required.	3
GLG 101N: Introductory Geology I: Physical Geology	Introduction to the physical aspects of the earth's crust. Includes rocks and minerals and their relationship to one another. Also includes surface and subsurface processes operating on and in the earth.	None	4
PHY 121N	Introduction to general physics for programs requiring a one-year, non-calculus based physics course. Includes the nature of physics; linear motion and kinematics; dynamics; work and energy; and linear momentum. Also includes rotational motion; heat; states of matter; and waves and sound.	With a grade of C or better: MAT 151.	5

Recently, the following courses were added to the A.S. Life Science curriculum:

AST 101N: Solar System	Introduction to the science of the nature and origin of the solar system, the sun and its family of planets, and comets and asteroids. Includes the history of astronomy and special topics regarding the space program. Includes scientific thinking as an application of critical thinking and science in contrast to pseudoscience. Lecture and lab are integrated.	Completion of MAT 092 Elementary Algebra, assessment at or completion of WRT 101 or signature of instructor	4
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AST 102N: Stars, Galaxy, Universe	Introduction to the universe beyond the solar system. Includes the nature of light, how astronomers and telescopes work, and the possibilities of alien life in the universe. Also includes the lifetime of stars, quasars, pulsars and black holes, and the origin, nature and future of the universe. Also includes scientific thinking as an application of critical and quantitative thinking and science in contrast to pseudoscience. Lecture and lab are integrated	Completion of MAT 092 Elementary Algebra, assessment at or completion of WRT 101 or signature of instructor	4
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Below is a representative sample of student evaluations of faculty for each instructor teaching in the Science program.

Fall 2015
Dr. Teresa Newberry
Environmental Biology
BIO 105N

Item	Rating	Item	Rating
Rating of course	4	Instructor's teaching effectiveness	4
Cultural sensitivity	4	Himdag discussion	4
Level of learning	3.	Respect	4
In-class activities	3.8	Homework	3.8
Course material	3.8	Timely feedback	3.8
Instructor on time	3.6	Instruction clarity	4
Comments: What did you especially like about this course?			
<ul style="list-style-type: none"> The field trips. 			
<ul style="list-style-type: none"> How the O'dham way of life was correlated with science and the way we live. 			
<ul style="list-style-type: none"> Exact information the teacher wants to teach, well organized. 			
<ul style="list-style-type: none"> Field trips, lab work. 			
<ul style="list-style-type: none"> The presentation and research topics. 			
Comments: What suggestions would you make to improve the course?			
<ul style="list-style-type: none"> More field trips. 			
<ul style="list-style-type: none"> Everything was actually really good! 			
<ul style="list-style-type: none"> None. 			
<ul style="list-style-type: none"> More lab work. 			
<ul style="list-style-type: none"> Nothing. 			

Fall 2016
Dr. Adrian Quijada
BIO 181N
Unity of Life I: Life of the Cell

Item	Rating	Item	Rating
Rating of course	4	Instructor's teaching effectiveness	4
Cultural sensitivity	3.6	Himdag discussion	3
Level of learning	4	Respect	4
In-class activities	3.8	Homework	4
Course material	4	Timely feedback	4
Instructor on time	3.4	Instruction clarity	4

Spring 2016
Dr. Melanie Lenart
ANR 111N
Agroecology & Tohono O’odham Crop Production

Item	Rating	Item	Rating
Rating of course	4	Instructor’s teaching effectiveness	3.8
Cultural sensitivity	3.8	Himdag discussion	3.5
Level of learning	4	Respect	4
In-class activities	3.8	Homework	3.3
Course material	3.5	Timely feedback	3.8
Instructor on time	3.8	Clarity	3.3
Comments: What did you especially like about this course?			
<ul style="list-style-type: none"> • I enjoyed the agricultural aspect, as well as the cultural aspect • The hands-on experience of going out into the garden field for our lab • The lab work, hands on gardening • Getting hands-on experience at student farm. Refresher course on math for agriculture was helpful. Bingo game was fun. 			
Comments: What suggestions would you make to improve the course?			
<ul style="list-style-type: none"> • Take more field trips to other fields or gardens, build a small garden at Main Campus to have close by rather than traveling to West • Have a definite schedule for this course • Have it every semester 			

Overall, students seem to be highly satisfied with the course offerings, the rigor provided and summative outcomes.

Section III. Program Alignment with College Mission and Goals

The Science program does not have its own mission statement, but has utilized TOCC’s vision, mission and goal statements as guidance.

Culturally-relevant curricula should validate the culture and language of students, allow students to become co-constructors of knowledge, be infused with rich connections to students’ cultural and linguistic backgrounds and be designed within family and community contexts (Belgarde, Mitchell & Arquero, 2002). The Science Program strives to achieve these goals through the application of an indigenized version of Zais (1976) model (Table 2). For example, two A.S. program outcomes specify the following two Himdag-related outcomes: Upon completion of the A.S. program, students are expected to be able to 1) display a sense of place and knowledge of the natural world’s role in Tohono O’odham life and 2) articulate the convergence and divergence of Indigenous and Western scientific knowledge.

In addition, each Biology course is based on a course theme which is a Himdag core value. For example, the theme of Environmental Biology is T-Pi:k Elida or deep respect. This enables the

course to be taught from the Himdag perspective thereby helping students relate the science content to their culture. For example, Natural History of the Southwest's theme is O'odham ni'oki or O'odham language and in this course, students learn the Tohono O'odham names of plants and animals as well as the scientific name. The development of the TOCC Plant Atlas, an HTML-based tool of more than 100 taxa of desert plants and native crops developed under USDA funds, incorporates both the scientific name and O'odham name for many of the common plants in the Sonoran Desert thereby strengthening both language and scientific knowledge. Students have responded positively to this course and the science curriculum as expressed in the following student feedback:

- This class “showed me how science and O’odham language can interrelate” and “how in our O’odham Himdag, we use science.”
- This class “opened my eyes to combining O’odham culture with Biology. I can’t wait to take another science course with Dr. Teresa Newberry.”
- “I would encourage all O’odham to take this class here at Tohono O’odham Community College while it is offered to know that it does not exist anywhere else in our universe.”

Table 2. Indigenous Model of Education. Created by 2006 “Indigenous Educational Methodology” class with Dr. Greg Cajete based on model of Zais (1976) and described by Newberry et al. (2009).

Components	Foundation
Aims, Goals & Objectives Creation of culturally relevant curriculum	Epistemology -Includes both Western & Indigenous epistemology
Content/Courses Includes both traditional knowledge & 21 st -century content area	Society/Culture Considers the needs of Native American students
Learning Activities Includes storytelling, games, songs, experiential learning, service learning, mentoring activities, whole earth connections	The Learner Considers the learning styles of Native American students especially reflective learning & active learning
Evaluation Holistic, long-term, imbed cultural practices	Learning Theory Knowledge is always situated in sacred bounded space

One of the goals of our program is to produce culturally competent, intentional learners who are equipped to address the challenges faced by a complex, global society. The inclusion of traditional ecological knowledge and social sciences in STEM curriculum promotes integrative, multi-contextual thinking and empower students to utilize their cultural knowledge and unique perspectives in problem-solving. In addition, we explore innovative teaching strategies such as collaborative, problem-based learning (PBL) as well as the incorporation of technology, research, and entrepreneurship.

We have created a strong foundation in the transdisciplinary curriculum through our recent Southwest Native Lands (SWNL) project which sought to improve math and science instruction through interdisciplinary, high context learning. These thematic units were offered as part of an SWNL semester where math, science and Tohono O’odham culture classes met jointly to form a learning community to explore biodiversity, water resources, and climate change. Each unit incorporated a field trip to a culturally significant location, environmental sampling and lab work and formal and informal lectures on math, science and Tohono O’odham history and culture. The SWNL project lays the groundwork for the creation of integrative learning communities at TOCC which is currently being considered for expansion and continuation in our long-range planning. In addition, we have also incorporated problem-based learning (PBL) based on the Man in the Maze model throughout our courses.

Departmental Caucuses Reflecting Assessment of Program Criteria

The Life Science faculty meet on a bi-weekly basis to discuss all aspects of the science program including how to improve our curriculum and instructions, future curricular directions, lab and field needs, course scheduling and student success. These meetings include a discussion of on-going program level outcomes.

Life Science faculty were actively involved in an extensive planning process to identify strengths, challenges, and opportunities for STEM at TOCC through an NSF funding planning grant. This planning grant supported six facilitated visioning workshops attended by different stakeholders including TOCC faculty; administration and students; teachers and students from Baboquivari High School (BHS) and Tohono O’odham High School (TOHS); the three state universities, including University of Arizona (UA), Arizona State University (ASU), Northern Arizona University (NAU); representatives from the Nation’s Departments; and various federally funded and local agencies such as the National Optical Astronomy Observatory (NOAO), U.S. National Park Service (NPS), Natural Resources Conservation Service (NRCS), and the Arizona-Sonoran Desert Museum (ASDM). The Life Science faculty actively participated in the two visioning sessions designed to get input from TOCC Faculty and Staff and attended all of the visioning sessions as observers. Table 3 summarizes the priority areas identified by identifying the strengths, challenges, and opportunities for STEM at TOCC.

Table 3. Workshop Results on the STEM Capacity-building Plan for TOCC

Workshop Results: 4 Vision Pillars	
Pillar 1: Curriculum Building	Expand STEM physical science curriculum and online delivery.
Pillar 2: Instructional Strategies	Indigenous Education Model, increased rigor, and Indigenizing curriculum.
Pillar III: Professional Preparedness	Workforce internships and research experiences.
Pillar IV: Bridging	Support for transitions from high school to TOCC to University, with a focus on academic preparedness.

Section IV. Student Participation and Success

As shown in Figure 3 below, from 2012 through 2015 the graduation rate ranged from 2 to 3 students. However, in 2016, the graduation rate more than doubled to 7 students. Although the sample sizes are small, we interpret this increase as being a consequence of adding one science faculty in 2015 and the contemporaneous implementation of our SWNL and PBL projects described above. We posit that further expanding the science faculty in conjunction with our educational initiatives will increase the number of students graduating in the sciences at TOCC.

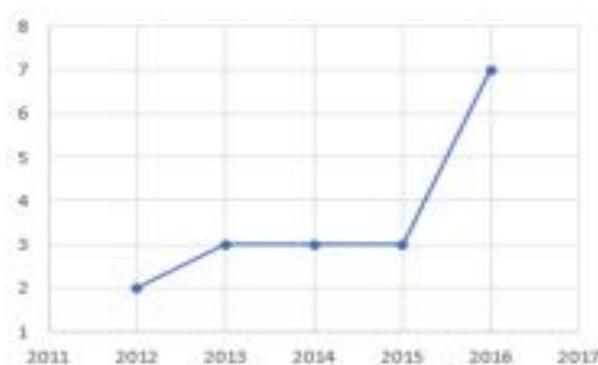


Figure 3. Students graduating per year.

No student survey data has been collected on satisfaction with the program and career choice.

Section V. Alignment with Community Needs

During the past four years, one student is pursuing a master's degree in Environmental Science, one student is employed by the TON Department of Natural Resources and one student is employed as a ranger at Saguaro National Park. Others are pursuing their four-year degrees in Computer Science and Health at the University of Arizona.

According to recent studies by the National Science Foundation (<https://www.nsf.gov/statistics/2016/nsb20161/uploads/1/6/chapter-3.pdf>), there is a projected increase in total employment in the Life Sciences of 9.2% and in Health Science positions of 21.5% through 2022. Percentile wage estimates for occupations in the Life Sciences are as follows:

Percentile	10%	25%	50% (Median)	75%	90%
Hourly Wage	\$21.24	\$26.15	\$35.51	\$49.56	\$65.56
Annual Wage	\$44,190	\$54,390	\$73,860	\$103,090	\$136,370

Source: <https://www.bls.gov/oes/current/oes191099.htm#nat>

Section VI. Human, Financial and Physical Resources

Below are the full-time and adjunct instructors teaching in the program, including their degree attainment and their expertise.

Name	Full-time / Adjunct	Degree	Other Qualifications
Teresa Newberry	FT	Ph.D.	Graduate Certificate in Higher Education Leadership; Secondary Education Certificate
Adrian Quijada	FT	Ph.D.	Postdoctoral work at UA's CLIMAS
Melanie Lenart	FT	Ph.D.	Postdoctoral work with CLIMAS
Michael Newberry	PT	Ph.D. Astronomy	Postdoctoral work and Lecturer at the University of New Mexico & University of Arizona
Daniel Aiken	PT	B.S.	20+ years experience as a geologist
Martha Burgess	PT	M.S.	Trained in traditional plant uses and language by Tohono O'odham elders

Dr. Teresa Newberry is in her tenth year as a Science Faculty member at TOCC. Dr. Newberry has a strong research and interdisciplinary science background which includes a B.S. in Physical Science with a Chemistry concentration (San Jose State University), a Master's degree in Natural Resources (University of Michigan) and a Ph.D. in Biology from the University of New Mexico. Her publications in the area of ecology and environmental science include six peer-reviewed papers in international scientific journals and many other publications in proceedings and conferences. Dr. Newberry also has extensive experience in community-based participatory research in the areas of climate change and sustainable energy development on tribal lands. Dr. Newberry is a recognized scholar in the area of traditional knowledge and Indigenous education and has been an invited faculty member at the University of Arizona to teach graduate courses in these areas. She recently developed an Indigenous educational model based on Tohono O'odham cultural worldviews (Newberry et al. 2016) and currently has a chapter in press in *Indigenous and Decolonization Studies in Education* (Eds. Smith, Tuck and Wang) on the role of transdisciplinary education as a decolonizing methodology.

Dr. Adrian Quijada has a strong research background in the areas of conservation genetics and animal ecology. His research interests center on wildlife ecology and environmental Indigenous issues in the US-Mexico Borderland Region. He has over 50 publications in peer reviewed scientific journals, book chapters, and popular magazines on science and biology. Previously Dr. Quijada was a Research Scientist at the University of Arizona and Full-time Professor at Universidad de Michoacán, Mexico with twelve years of teaching experience. In addition to

classroom teaching, he has extensive experience in serving as an advisor for graduate and undergraduate students in scientific research projects. He takes research activities as one element of the Problem Solving Learning (PBL) paradigm. He co-developed a new program titled “Studies in Indigenous Borderlands” at TOCC. This new program will require the application of PBL as an effective way to understand the complexity of environmental problems at the US-Mexico borderlands.

Dr. Melanie Lenart has a Ph.D. from the University of Arizona’s School of Natural Resources and the Environment, an M.S. from the University of the Illinois School of Forestry, and a B.A. from Northern Illinois University’s School of Journalism. Before coming to TOCC, she taught as an adjunct professor in the UA’s Department of Soil, Water and Environment Science (SWES) and leading projects for UA Cooperative Extension and the Linking Edible Arizona Forests (LEAF) Network. In SWES, Dr. Lenart taught courses in Translating Environmental Science and Water Harvesting, with the latter involving hands-on work with the landscape to direct rainwater toward plants. In 2012, the Sonoran Permaculture Guild awarded her a certificate in Permaculture Design, which involves creating sustainable food-producing systems. She worked for several years at the University of Arizona with the Climate Assessment for the Southwest (CLIMAS) project. Her publishing background includes authorship on more than a dozen peer-reviewed journal articles, dozens more science articles for the general public in publications such as Nature Reports Climate Change and the Southwest Climate Change Network, and hundreds of articles in newspapers. Much of her recent work has focused on how plants and ecosystems respond to climate change, including a peer-reviewed book (*Life in the Hothouse: How a Living Planet Survives Climate Change*, 2010) for the UA Press that garnered good reviews from general magazines and websites as well as scholarly journals.

Dr. Michael Newberry has a strong background in research, teaching, and entrepreneurship. His education includes a Ph.D. in astronomy from the University of Michigan, a Masters in astronomy from the University of Texas at Austin, and a B.S. in Physics from Oakland University. After his Ph.D., he held 2 postdoctoral research positions and the position of lecturer in astronomy. In that capacity, he advised both undergraduate and graduate students and supervised the master’s theses of some 20 students while at the University of Arizona. He has dozens of research publications in refereed academic journals and technical articles in second-tier publications which are widely used for training students and graduate students in astronomy. He also has authored dozens of white papers and web tools used for similar purposes. His research specialization includes extragalactic astronomy and cosmology, variable stars, instrumentation, data and numerical analysis, and experimental methods. Some 20 years ago, he became an entrepreneur in the young field of scientific image processing software, founding the company Mirametrix, Inc. which develops image analysis and visualization software used in higher education and for research by academic institutions, government laboratories, and corporations. The Mira software, in various versions, is the most widely used software worldwide in this subject area. Since 2008, and while President of Mirametrix, Dr. Newberry has been an adjunct instructor in astronomy at Rio Salado College in the Maricopa County Community College District. In this capacity, he has taught 120 online classes in introductory astronomy lectures and labs and has also created and revised curriculum for them. In 2011, Dr.

Newberry was awarded Faculty of the Year by Rio Salado College. In 2017, at TOCC, Dr. Newberry taught a summer institute in astronomy and oversaw the acquisition of a telescope and scientific CCD camera system for the college. Subsequently, at TOCC he taught AST 102N as the first online science class ever offered by the college. Dr. Newberry is also an accomplished fine art photographer who sells his works to private collectors.

Mr. Daniel Aiken received a BA in Geology from the University of Oregon in 1974. He worked as a mining and exploration geologist for several major copper corporations in southern Arizona for forty years and has traveled extensively to learn about diverse geological environments. He is currently on the Executive Board of the Arizona Geological Society and works full-time at TOCC, teaching English and Geology, tutoring in the Student Success Center, and studying the geology of the TON.

Ms. Martha Burgess has scientific expertise in Dendrochronology, Geochronology, Paleoecology which includes plant ecology. She is trained in traditional plant uses and language by Tohono O'odham elders and has 40 years experience teaching workshops in desert ecology and ethnobotany. At TOCC, she teaches a combination of hard ecological science based on my academic background and TEK (traditional ecological knowledge) based on personal training in the desert with Tohono O'odham traditional Elders.

Dr. Teresa Newberry was recently awarded a National Science Foundation Opportunity for Underrepresented Scholars (NSF OURS) fellow, during which she completed a Post-graduate Certificate in Higher Education Academic Leadership (April 2016). In 2014, she earned her Post Baccalaureate degree in Secondary Education. She is an officer of the Ecological Society America's Traditional Ecological Knowledge Section and regularly attends their annual meetings. In 2016, she also attended the International Conference on Conservation Biology after her presentation on indigenous language and traditional knowledge was accepted after a highly competitive process.

Dr. Adrian Quijada was awarded a USDA The Terra Preta do Indio Tribal Research Fellow. Commonly known as USDA's "Tribal Fellowship", matches tribal land-grant faculty and staff with USDA program and research staff to identify research needs specific to Indian Country and tribal communities. Currently, Dr. Quijada is the lead initiator and founder of the Tribal Colleges Consortium on Genomics Training (TCCGT), which include a network of tribal colleges and universities in collaboration with agencies and institutions such as NHGRI-NIH, NIFA-USDA, and research universities, among others.

Dr. Melanie Lenart joined the TOCC faculty in the fall of 2015. Throughout those two years, she has been involved in the TOCC Land Grant Office of Sustainability, which serves as the college's Extension outreach program. Her work with the LGOS has given her the opportunity to interact with many partners in the community, especially in her role with the Farm and Food Working Group, a coalition of people from across the Tohono O'odham Nation who support the goal of increasing the number of farmers and distributors of traditional food on the TON. She has presented on TOCC efforts at the First Americans Land-Grant Conference and other venues, and

takes any opportunity that fits into her schedule to learn more about the tribe and others that are part of the tribal college system. As required for all TOCC employees, she has taken college courses on Tohono O’odham Language and Tohono O’odham History and Culture.

Current Recommendations are to 1) hire a full-time Chemistry Instructor and adjuncts to teach the following courses: Physics, Introduction to Anatomy and Physiology, Human Nutrition, Geology, Astronomy, and GIS instructor.

Future recommendations based on our recent STEM Strategic planning process are to:

- expand STEM curricular offerings in the Physical Sciences and increase the number of courses offered through online delivery;
- apply the Man in the Maze model to Indigenize the curriculum, increase rigor, and promote student success and retention;
- promote professional preparedness of students through internships and research experiences; and,
- increase support for high school to TOCC, and TOCC to University transitions.

To achieve these goals, we also project the need to hire an additional faculty in the physical sciences and to provide professional development for all STEM faculty members.

Throughout her tenure at TOCC, Dr. Newberry has actively served in many leadership roles related to self-governance as follows:

- Faculty Senate President (2012)
- Faculty Senate Vice President (2016-2017)
- Faculty Senate Secretary (2012-2015)
- Curriculum Committee Chair (2009-2017)
- Committee Member for Criterion3 (Teaching and Learning) for the 2016 TOCC HLC_NCA Re-accreditation process.
- Research Committee, Chair. Developed institutional guidelines for research at Tohono O’odham Community College. 2005—2007 & 2010—2015.
- Chair, Self-study Subcommittee. Chaired committee responsible for writing the Criterion I (Mission and Integrity) section of the Self-study report submitted for HLC-NCA Re-accreditation Process, 2009—2010.

Dr. Quijada is president of Faculty Senate T-Ba’itk from October 2016 to present. Previously, 2014-2015, he was vice president and member of faculty development committee and curriculum committee. He has promoted college’s shared governance as a priority and promoting direct and open communication among administrative staff and faculty.

Dr. Lenart is an active member of TOCC’s Curriculum Committee, the Leadership Committee, a group of college employees across the spectrum of departments, and the Jewed Committee, which evaluates any proposals involving land use of the college campuses and makes

recommendations to the TOCC Cabinet. Her activities at the college include working with her Plant Science and Water Resources students to plant trees on the main campus. The project for the latter class included developing a raised pathway and other water-harvesting features to support the trees planted near the new Education building. Dr. Lenart also works closely with Clifford Pablo, the college's Extension agent and Student Learning Farm manager, to guide students in planting traditional crops at the college's West campus and occasional harvesting of wild food.

As current PI and Project Director of the NSF TCUP STEM Pre-TI grant, Dr. Newberry is working on outreach and partnerships with the Tohono O'odham Nations departments and K-12 educational system in order to build solid relationships for the recruitment, retention, and success of STEM students. In 2009, she served as project director of a NASA-AIHEC grant for a community-based participatory research project exploring the impacts of climate change and strategies for responding to climate change impacts on the Tohono O'odham Nation. From 2010-2013, she served as Co-PI and Project Director on a USDA-NIFA Research Grant that explored appropriate renewable energy development in a remote community on the Tohono O'odham Nation using community-based participatory approaches. In 2009, she established the TOCC AISES student chapter and currently serves as co-advisor for the chapter. TOCC AISES chapter frequently sponsors Star-gazing events open to the community to generate an interest in science and an interest in STEM education.

Dr. Quijada has been involved in collaborative initiatives for outreaching high schools at the Tohono O'odham Nation, particularly Baboquivari High School and Tohono O'odham High School. He also has been presenting in district and legislative council meetings to inform about the Studies in Indigenous Borderlands program concentrations. Also participated in multiple district meetings as part of the team to inform and explain TOCC annual report and obtain communities support for college budget. Dr. Quijada has been very active in further developing collaborative initiatives with University of Arizona focus in bringing opportunities for faculty and students. He is also a member of the border wall committee of N-Gen (Next Generation Sonoran Desert Researchers) focus in evaluating the potential impacts of the US-Mexico border wall.

Dr. Lenart's work with the TOCC Land Grant Office of Sustainability and the related but informal Farm and Food Working Group provides her with opportunities to work on efforts to increase the distribution of traditional food at the college and around the Tohono O'odham Nation. She also attends activities and events at local high schools, such as Ha:San Preparatory School and Baboquivari High School and its Future Farmers of America club, in an effort to help bring more O'odham students to the college, including through a dual enrollment effort planned for 2018. She is actively involved in organizing the annual Youth Agriculture Day event, which brings high students from around the Nation and in Tucson for a mid-October day of food-related activities. With her husband, she recently bought some land in the nearby area of Three Points, where she is working to stabilize the degraded floodplain land that is quite similar to much of the land area on the Tohono O'odham Nation. She also participates in activities such as

the rodeo, community star-gazing events sponsored by the college, district and Legislative Council meetings, and other activities that give her a chance to see more of the TON.

All regular classrooms in the three locations have multimedia facilities adequate for regular instruction and long-distance teaching and webinars. The College has Internet connectivity that supports Canvas LMS teaching interphase and online courses. STEM on-campus facilities include three laboratories; one of them equipped with biological and environmental equipment and kits suitable for chemistry. Another laboratory is a multipurpose laboratory-classroom set, which also contains TOCC's ethnobotanical herbarium. There is a third laboratory-classroom set for information technology (IT) and computer science education. There is a professional telescope that has been used for astronomy classes. The College allocates resources and vehicles for field trips to different points in the Nation and outside particularly visits Arizona universities, museums, and research centers.

In order to expand our program, we need additional laboratory space and classrooms. We need state of the art computing facilities and software in order to adequately to support our GIS courses. We need a structure to house our professional research-grade telescope. We need additional office space to accommodate additional faculty needed to fulfill the needs of our growing program. We need access to scientific databases for our research and courses.

Section VII. Recommendations and Preliminary Implementation Plan

Recommendations for our immediate needs are to 1) hire a full-time Chemistry Instructor and adjuncts to teach the following courses: Physics, Introduction to Anatomy and Physiology and Nutrition as well as Geology and Astronomy. Our recommendations for the future of the program are described in the section below.

In March 2017, TOCC received an NSF TCUP STEM Pre-TI planning grant to engage our institution and stakeholders in an extensive planning process to identify strengths, challenges, and opportunities for STEM at TOCC, and to formulate a shared vision for future STEM programs at TOCC. Six facilitated visioning workshops were organized and attended by different stakeholders including TOCC faculty; administration and students; teachers and students from Baboquivari High School (BHS) and Tohono O'odham High School (TOHS); the three state universities, including University of Arizona (UA), Arizona State University (ASU), Northern Arizona University (NAU); representatives from the Nation's Departments; and various federally funded and local agencies such as the National Optical Astronomy Observatory (NOAO), U.S. National Park Service (NPS), Natural Resources Conservation Service (NRCS), and the Arizona-Sonoran Desert Museum (ASDM). A total of 81 participants attended the different sessions from March through June 2017. The last visioning workshop reviewed and prioritized the results of the stakeholder visioning sessions in conjunction with TOCC's strategic plan resulting in the five-year strategic plan for STEM below:

**Five Year Strategic Stem Plan
Tohono O'odham Community College**

July 2017	
Vision Pillar 1: Curriculum Building: Expand TOCC Curriculum & Programs	Expand STEM curriculum offerings in physical sciences & math including developing an A.S. in Physical Science with concentrations in Astronomy, Computer Science & Engineering
	Incorporate Indigenous science and knowledge in new & existing course offerings.

Five Year Strategic Stem Plan Tohono O’odham Community College July 2017 (continued)	
	Offer Certificates in GIS and Indigenous Science.
	Increase accessibility of STEM courses through on-line courses
	Promote the hiring and retention of O’odham and Native American STEM faculty to promote cultural infusion.
	Lay the groundwork for future Bachelor’s degree program by building capacity and increasing student enrollment.
Vision Pillar 2: Instructional Strategies: Indigenous Education, Rigor & Engaged Pedagogy	Apply the Man in the Maze indigenous education model for curriculum development, program assessment and incorporation of core values.
	Develop culturally sustaining curriculum using indigenous education strategies.
	Decolonize education through the adoption of holistic, transdisciplinary teaching approaches through the creation learning communities.
	Use problem-based learning and course-based research to increase rigor and create intentional learners.
	Link students to community through service learning and community-based action research.
	Create a Sonoran Field Studies Center which will include a natural experimental area, astronomical observatory, and public exhibit area.
	Create a Joint Science and Culture Center of Excellence in collaboration with universities for the production and preservation of traditional ecological knowledge.
Vision Pillar 3: Academic Preparedness: Bridging, Outreach & Mentoring	Provide support for students during their transitions from high school to TOCC and TOCC to the University of Arizona through 2+2 and summer bridge programs which provide academic support and address the whole student.
	Hold statewide annual summer institute with university faculty for the exchange of knowledge regarding programs, education, and support of indigenous students.
	Provide summer Science Institutes for STEM with interdisciplinary approach with focus on science enrichment as well as strengthening reading and writing for K6-K14 students.
	Promote STEM careers and opportunities within the Tohono O’odham Communities

Five Year Strategic Stem Plan Tohono O’odham Community College July 2017 (continued)	
	Explore the use of the Man in the Maze Education model to promote student retention by incorporating elements of the Family Education Model.
Vision Pillar 4: Professional Preparedness: Workforce, Internships & Research Experience & Training	Implement community-based applied research driven by tribal stakeholders.
	Provide a holistic and balanced education in professional STEM skills and knowledge and career skills through workshops.
	Develop paid internships that are focused on service to tribal communities and working with local agencies.
	Provide paid research experiences in collaboration with universities and local agencies.
	Celebrate STEM through Science fairs, career days, and open houses.

NSF TCUP Institutional Capacity Excellence (ICE-T) Grant:

With support from the NSF TCUP STEM Pre-TI grant, we prepared and submitted an NSF TCUP ICE-T grant, *Pathways to Indigenous STEM (Ma:cidag wo:g STEM Wui)* in the amount of \$2.5 million dollars which, if awarded, will begin in Fall 2018 through Fall 2013. This grant was written based on the priorities identified in the above Five-Year Strategic plan. These goals include strengthening and transforming the STEM program at (TOCC) by improving instructional capacity, Indigenizing the science curriculum, and strengthening culturally responsive academic support for students. The *Man in the Maze Education (MiME) Model* developed at TOCC will serve as a culturally-based framework for curriculum development and program assessment and will provide an intentional and systematic approach to Indigenizing our curriculum and programs. By implementing a comprehensive approach to student success based on our *MiME Model*, our goal is to produce culturally competent, self-directed learners equipped to succeed in an increasingly complex and globalized society.

Additional Future Directions

The above *Pathways to Indigenous STEM (Ma:cidag wo:g STEM Wui)* grant and STEM strategic plan will impact and set a future direction for all of our math, science and health programs, however, we have significant activities in several other areas of our program:

Health Sciences:

Through our partnership with Southeastern Arizona Health Education Consortium (SEAHEC), we plan to strengthen our current offerings in the Health Science option in the A.S. Life Science program. We will be creating a one-credit Health Careers course which will be offered as dual enrollment with the high school students building on the future health leaders' summer bridge program. We plan to build an Associate of Arts in Community Health with a focus on wellness and public health centered on the needs of the Tohono O'odham Nation.

Studies in Indigenous Borders:

In order to further develop our work in the area of Indigenous Borderlands, we are submitting a proposal for the Challenge Grant at the Agnese Nelms Haury Program in Environment and Social Justice at the University of Arizona. Through this partnership between TOCC, the University of Arizona (UA), and O'odham villages in Sonora, we will leverage the resources of TOCC's SIB program to expand curriculum (three classes) and build a hands-on cultural exchange practicum—Winter and Summer O'odham Himdag Gatherings in Sonora, Mexico—to sustain Tohono O'odham traditional ecological knowledge for future generations.

Agriculture:

We plan to continue to develop our work in offering courses and programs that lead to food sovereignty with a focus on sustaining environmental and human health in the face of climate change impacts in the Southwest. This work is supported by TOCC's Land Grant Office of Sustainability and our NIFA funding and additional funding will be sought to support these efforts. We plan to create a Sustainable Foods A.A.S. degree with a focus on Agribusiness to promote food sovereignty of the Nation.

Developing a Community-based Research Plan for TOCC

To fulfill TOCC vision and mission and preparing our students for future academic and labor endeavors, research needs to be part of our program. Through our recently funded NIFA Research Capacity Building grant, "*Building a Community-Based Research Plan at the Tohono O'odham Community College*", we plan to build a Statement of Community Needs and a Research Development Plan for TOCC that responds to current and future needs of the Tohono O'odham Nation (TON). These documents will arise from visioning sessions conducted by faculty, students and a facilitator with the TON's districts and communities, government departments, schools and tribal stakeholders and our partner the University of Arizona. One of the products of this grant will be an Indigenous Research class, which will include training in community-based participatory research, decolonizing methodologies and case studies that incorporate both traditional ecological knowledge and Western Science.

Here is a list of our current human and physical resources needed to address the issues identified in our self-study:

- Laboratory Assistant and Field Trip coordinator
- Full-time faculty member in Chemistry

- Full-time faculty member in Physics & Astronomy
- Adjuncts faculty members in Nutrition and Anatomy and Physiology
- Cultural mentors to assist in implementing the Man in the Maze educational model and integrating our curriculum into the Himdag, specifically in the area of traditional ecological knowledge.
- Scientific grade laptops that are GIS capable.
- Additional Chemistry and Physics Lab Space.
- Offices for the two new faculty members.
- Land for our proposed Tohono Field Studies Center.
- A small building to house our new research-grade telescope.
- More storage space for our lab and field supplies.
- On-going funding for lab and field supplies.
- Increased access to scientific databases and on-line library resources.

In addition to on-going funding and support from TOCC and TOCC's NIFA Equity and Title III funding, here is a list of our current and pending funding which will be used to fund STEM & Health at TOCC:

Title	Funding Source	Amount	Timeframe	Status
Strengthening STEM at TOCC	NASA Space Grant	\$5K	Annually	Current
Strengthening Health Initiatives at TOCC	SEAHEC	\$15K	Spring & Summer 2018	Current
Building a Community-based Research Plan at TOCC	NIFA	\$85 K	10/18-10/20	Current
Pathways to Indigenous STEM (Ma:cidag wo:g STEM Wui)	NSF	\$2.5 M	10/18-9/23	Pending
Building a Community-based Research Plan at TOCC	NIFA	\$85 K	10/18-10/20	Received
Studies in Indigenous Borderlands Institute (SIBI): Strengthening Self-determination through Traditional Ecological Knowledge	Haury Foundation	\$600 K	7/18-721	Pending

Section VIII. Informing Stakeholders

Once the Program Review is complete, electronic copies will be sent to the President of the Faculty Senate and to the President's Cabinet. Both entities will review the completed program review reports to make their own recommendations. Should actions be indicated, the administration will develop an appropriate action plan with the Education Division.

Appendix

A: Assessment results and improvement plan

Assessment Results & Improvement Plan

Department/Program and Degree:	Associate in Science in Life Science
Semester/Year Evidence Collected:	Academic year 2014 – 2015
Assessment Coordinator:	Richard Lee
Academic Chair:	Dr. Mario Montes-Helu
Lead instructor for Program/Degree:	Dr. Teresa Newberry
Data manipulations:	Collected by Newberry, analyzed by Lee
Date submitted:	January 22 nd 2016

Abstract:

An initial assessment of the Associate in Science in Life Science degree program was done in 2014-2015, with the results being that (a) students were performing equally to the general student population, and (b) students needed only minimal remediation with some requirements of research and sense of place.

1. State the Student Learning Outcomes (SLOs) that were Assessed, Targeted, or Studied, or State the Assessment Question(s) and/or Goal(s) of Assessment Activity

The following Associate of Science in Life Science program level outcomes (PLOs) were assessed:

- a) A.S. Life Science Outcome 2: Design and conduct a research project*
- b) A.S. Life Science Outcome 3: Display a sense of place*

Outcome 2 was assessed in the Service Learning Capstone class (BIO/ANR 298) with a Service Learning Project (see attached Service Learning Project and Rubric) with a performance objective of “Good” or 80%. Outcome 3 was assessed in the Research Capstone class (BIO.ANR 299) with a Research Capstone Project (see attached Research Project Assignment and Rubric) with a performance objective of “Good” or 80%.

In addition, the students for assessed for the two General Education Goals (GEGs):

- a) Presentation—Communication*
- b) Writing: Student uses accurate mechanics and grammar.*

This particular program-level assessment had two goals:

- a) Setting a baseline of what level of learning students majoring in Life Science were at with respect to the general population, and*
- b) Finding areas of improvement needed, in this initial assessment.*

2. State the Type(s) of Evidence Gathered

Assessments of student work involving writing and presentation communication within and outside of Science courses, along with some involving the Research and Service Learning Capstone classes were collected throughout the academic year.

3. State How the Evidence was Interpreted, Evaluated, or Analyzed

The Lead Instructor used rubrics to evaluate either written work or presentations. In some cases other individuals were involved in the evaluation.

4. State How Many Pieces of Evidence Were Collected

With each of the three students completing the program, a minimum of four pieces of evidence were collected (writing assessment, presentation assessment, Research Project capstone, Service Learning Project capstone). In light of the small numbers involved, no sample was taken of the population.

5. Summarize the Actual Results

While the mean scores amongst the Life Science degree completers was higher than the general population in the writing and (presentation) communication assessments, the t-tests conducted said that this could be strictly be by chance. For the program-specific assessments, only an initial review could be done.

For this initial program level assessment, 80% is to be considered a success. Based on this performance objective, the Research Project at 87% was successful, while the Service Learning Project at $153.33/200 = 76.66\%$ was approaching successful. Furthermore, for initial review, the student competencies in formulating an abstract and conclusion for the Research Capstone, and problem identification for the Service Learning Capstone were performing below expectations.

6. In addition to the actual results, were there additional conclusions or discoveries?

The biggest issue for this assessment was the miniscule sample size: there is an inherent danger of having a small enough sample size as to have personally identifiable information about the student (subjects).

7. Briefly Describe the Distribution and Discussion of Results

Initially, the Lead Instructor is receiving the analysis directly from the Assessment Coordinator. After everything has been reviewed, there are plans for this to be used (a) for plans for further improvement, and (b) as a template for program-level assessment for other degree programs here at TOCC.

8. Use of Results/Program Modifications: State How the Program Used the Results, or Explain Planned Use of Results

The results of the initial assessment of the program level outcomes (PLOs) for the Associate of Science in Life Sciences program revealed that although the students successfully demonstrated the ability to design and conduct a research project, they need improvement in in the specific areas of writing an abstract and conclusion. In order to improve student performance in these two areas, students will be given additional practice in BIO 105N in the Desert Ecology Project where this PLO is introduced and in BIO 181N in the Diffusion Lab where this PLO is reinforced (see attached A.S. Life Science Assessment Plan).

The data also showed that students need some minor improvement to display a sense of place as determined by performance in the Service Learning Project. The weakest area for the students was in the area of problem identification with the target being:

- *Demonstrates the ability to construct a clear problem statement with evidence of a good understanding of the health or environmental issues on the Tohono O’odham Nation including most relevant contextual factors.*

The average score in this area was 58% which falls into the “Fair” category on the scoring rubric. In order to improve students’ performance for this metric, an increased focus on problem identification will be included in BIO 105N Service Learning project where a “Sense of Place” is introduced and in BIO 208N Class Project where it is reinforced.

9. Reflect on the Assessment Process

The assessment process was helpful because it provided diagnostic tools to identify areas in which the students needed improvement. Upon reflection, the scoring process on the “Sense of Place” Service Learning project should be re-evaluated since the “Good” category is scored at 30 out of 40 or 75% which

might have skewed the results downward. For the Research rubric, the “Good” category is 8 out of 10 or 80% which is the target whereas for the Service Learning project, the “Good” category is 30 out of 40 or 75% and these should be consistent across rubrics. Since the overall score on the Service Learning project was 77%, this falls into the “Good” category but does not meet the 80% target score. In other words, the qualitative descriptions should match the quantitative values across rubrics.

10. Other Important Information

One reason for the low student count in this program-level assessment is that Spring 2015 was the first time the Service Learning and Research Capstone courses were taught. For the next round of program level assessment, it is anticipated that there will be a few full year of student data which will increase the sample size. Only two of the four A.S. Life Science PLOs were measured upon the recommendation of the then Assessment Coordinator, Annabah Conn. Currently, the program-level assessment is being re-evaluated in the context of applying an Indigenous Educational Framework model—The Man in the Maze to program-level assessment. This will result in a more complete evaluation of the integration of the program into the Himdag.

What follows here is the technical report:

Firstly, some comparisons need to be made between students completing the Associate in Science requirements against the general population.

Writing:

	spelling	punctuation	capitalization	verb tense	agreement	run-ons	splices	fragments	content	organization	fluency
Science students Spring 2015 (n = 2)											
mean	4.00	3.00	4.00	3.50	3.00	3.50	3.00	3.50	3.50	2.50	3.50
st dev	0	1.41	0	.71	1.41	.71	1.41	.71	.71	.71	.71
Overall Spring 2014 (n = 45)											
mean	3.01	2.97	3.61	3.71	3.78	3.62	3.44	3.54	2.78	2.68	2.52
st dev	1.02	0.91	0.70	0.66	0.60	0.70	0.82	0.75	0.90	0.88	0.84

Total score	Science students Spring 2015	Overall Spring 2014
mean	36.00	35.67
st dev	8.49	5.73
n	2	45

A basic 2-sample *t* test, unpooled, was run, with the null hypothesis that these two groups of students had substantially the same mean writing scores (and by implication, made the Science students representative of the pool) against the alternative hypothesis that they weren't. Probability that the former could happen was $p = .965$, meaning that in good faith, the null couldn't be rejected, and thus the Science students were representative of the pool.

Communication via presentation:

	preparation	subject knowledge	organization	posture	audience acknowledgement	visuals	elocution	enthusiasm	timing / pacing
Science students Spring 2015 (n = 3)									
mean	3.33	4.00	3.33	3.67	3.00	3.67	3.00	3.33	3.33
st dev	1.15	0	.58	.58	1.00	.58	1.00	1.15	.58
Overall 2015 Spring (n = 30)									
mean	3.15	3.38	3.35	3.09	2.90	3.28	3.38	3.18	3.32
st dev	0.80	0.67	0.71	0.66	0.72	0.81	0.67	0.71	0.74

Total score	Science students Spring 2015	Overall Spring 2015
mean	31.00	29.03
st dev	4.36	4.37
n	3	30

Again, a basic 2-sample t test, unpooled, was run, with the null hypothesis that these two groups of students had substantially the same mean presentation communication scores (and by implication, made the Science students representative of the pool) against the alternative hypothesis that they weren't. Probability that the former could happen was $p = .520$, meaning that in good faith, the null couldn't be rejected, and thus the Science students were representative of the pool.

Now, with this being the first time programs are being assessed, the scores involving research and sense of place capstone coursework obtained in Spring 2015 can only be considered to be a baseline for further data analysis. What follows are means scores, given the minute sample sizes.

Research Capstone Spring 2015 (n=2)	mean score (each component out of 10)
title	10
abstract	7
introduction	10
thesis	10
body	8
research	9
reasoning	8
conclusion	7
formatting	10
bibliography / citations	9
Total	87

Sense of Place Capstone Spring 2015 (n=3)	mean score (each component out of 40)
problem identification	23.33
problem solving	30.00
engagement / commitment	36.67
knowledge of science	33.33
t:šo-şon	30.00
Total	153.33

In the eyes of faculty, for initial review, 80% is to be considered a success. On that standard, the research capstone at 87% was successful, while the sense of place at $153.33/200 = 76.66\%$ was barely below successful. Furthermore, the bold-faced subcategories (formulating an abstract and conclusion for the research capstone, problem identification for the sense of place) were performing below expectations.

At the direct request of the faculty, since the data comparing the science cohort and the overall pool were inconclusive, original data from the three students in Bio 299 was analyzed. For privacy purposes, they're called students 1, 2 and 3. **For readability purposes, the following analyses and charts will be in landscape.**



Business Program Review (November 17, 2017)

Prepared by:
Neal Wade, MBA

I. Introduction

A. Program Description

The Associate of Business in Business Administration (ABBA) is a transfer degree that incorporates the General Education requirements of the University of Arizona. The degree focuses on the general education requirement and the requirements to transfer to a four-year institution. The degree requires 36 credit hours of general studies and electives and 18 credit hours of core business courses that are required for transfer. Six credit hours of electives are also required, which culminates to a total of 60 credit hours for the completion of this degree.

B. Program History

The Associate of Business in Business Administration (ABBA) first appears in the TOCC 2014-2016 catalog, and is the college's first transfer degree in business. When the college began offering degrees in 2000, the Associate of Applied Science in Business, for direct employment with a management specialty, was offered under the auspices of Pima Community College. The current ABBA includes the AGEC-B (business AGEC), which was also included in the applied science degree.

In 2014 the TOCC Education Division developed the transfer degree, updated its requirements to include the appropriate transferable courses, and identified the program's learning outcomes (PLOs) and curriculum map. The process had been

initiated by the former applied associate program's full-time instructor, who sadly passed away in 2014. The department chair of general education, at that time, picked up from that point and completed the process, bringing the completed ABBA program to the Board for its approval in fall 2014. Also in 2014, a full-time business faculty was hired. Assessment of the PLOs began in fall 2017.

The Academic Advisor meets with business students at least once a semester to help with course schedule selection and to track their progress in the program. The Retention Coordinator works with faculty to assist business students and to troubleshoot any problems or issues that may arise during the semester. The full-time Business Instructor provides mentoring and guidance to business majors to help them achieve their academic goals.

C. Special Applications or Requirements

There are no special application processes or requirements for this program.

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D. All Required Courses**Associate of Business in Business Administration (ABBA) (2016-2018)**

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
English Composition	WRT 101 Writing I	3
	WRT 102 Writing II	3
Mathematics	MAT 212 Topics in Calculus or higher	3
Humanities & Fine Arts	Any ART course	3
	PHI 101 Introduction to Philosophy	3
	THO 101 meets this requirement	N/A
Social & Behavioral Science	PSY 101 Introduction to Psychology	3
	ECN 201 Introduction to Microeconomics	3
	HIS 122 meets this requirement	N/A
Two Lab-loaded Science Courses "N" Designated		4
		4
TOTAL CREDITS - GENERAL EDUCATION		36
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core Requirements	BUS 100 Introduction to Business	3
	ECN 202 Macroeconomics Principles	3
	ACC 101 Financial Accounting	3
	ACC 102 Managerial Accounting	3
	BUS 205 Statistical Methods in Economics and Business	3
	BUS 220 Legal Environments of Business	3
TOTAL CREDITS - CORE REQUIREMENTS		18
Section III. Electives		
Fulfill Requirements	Course	Credits Required
Free Electives	Any two electives	6
TOTAL CREDITS - ELECTIVES		6
TOTAL CREDIT HOURS		60

One change was made to the program during the past four years to comply with transfer requirements:

Eliminated as Core Course	Added as Core Course
MGT110 Human Resources in Business and Industry	ECN202 Macroeconomic Principles

No external reviews of this program are required.

II. Program Learning Outcomes, Curriculum and Instruction

The table below shows the ABBA program's curriculum map, PLOs, and assessment methods. Note that this modified business program went through the curriculum process in 2014.

Associate of Business in Business Administration: Curriculum Map

Date and result of Curriculum Committee vote: Approved 10/2/2014

Date and result of Himdag Committee vote: Approved 10/2/2014

Program for transfer

AB in Business Administration		Required Courses (I=introduced; R=reinforced; A=assessed)					
		BUS 100 Intro to Bus.	BUS 220 Legal Env. of Bus.	ACC 101 Financial Accting.	ACC 102 Managerial Accting.	MGT 124 Small Business Mgt.	ECN 202 Macroecon. Principles
I	Demonstrate the ability to use data to solve common issues that arise in business operations.	I		R	A (Method: Final Exam)	I	R

AB in Business Administration		Required Courses (I=introduced; R=reinforced; A=assessed)					
2	Demonstrate knowledge of basic organizational & procedural principles of business.	I	R	I	A (Method: Written paper of 3-5 pages)	R	R
3	Demonstrate the ability to apply basic economic and legal concepts to a business operation.	I	A (Method: Final exam)	R	R	I	R
4	Provide an analysis of the degree of “fit” between a specific business plan and the O’odham Himdag.	I	R		R		A (Method: Take-home business plan for a business to be started on the Tohono O’odham Nation and students assess the plan in relation to O’odham Himdag, via a written response)

Each course in the above table is required and introduces, reinforces, or assesses one of the PLOs. All ABBA students are assessed for their knowledge, skills and attitudes of the program content to answer the question: Are students learning what the ABBA claims to be teaching them?

The 4th PLO assesses the Himdag requirement through an evaluation of a business plan to start a business on the Tohono O’odham Nation *as it relates to the Himdag, the culture and lifeways of the Tohono O’odham*. This assesses student learning of business within a cultural context that includes the tribal environment and cultural sensitivity of multiple

aspects of starting and operating a business on the reservation. From the online 2016-2018 catalog, below are the course descriptions for the four courses that either introduce, reinforce, or assess tribal and Tohono O’odham sensitivity. Text that is specific to meeting the Himdag requirement is in italics:

BUS 100: Introduction to Business: Introduces key principles of business operations in the private enterprise system. *Includes contemporary business and its environment, structure of American business, management principles of the organization, people, and production, marketing management, information systems and accounting and financing the enterprise.* (Himdag Introduced)

BUS 220: Legal Environment of Business Prerequisite: *Introduces the legal, ethical, and international environment of business.* Includes an introduction to law, ethics and corporate responsibility, judicial system and litigation, alternative dispute resolution, administrative agencies, crimes and torts, contract law, product liability, international business law, agency law, and legal forms of business enterprises. (Himdag Reinforced)

ACC 102: Managerial Accounting: Accounting training for managers. *Includes concepts for those who are inside an organization and responsible for planning, directing and controlling its operation.* Also includes process costing, profit planning, overhead analysis, and capital budgeting decisions. (Himdag Reinforced)

ECN 202: Macroeconomic Principles: *Economic theory as applied to the operation of the economy as a whole. Includes economic decision making, economic systems, supply and demand model, goals and problems of the macro economy, foundations of the macro economy, fiscal policy and budgets, money, the role of financial institutions and the Federal Reserve, money creation, monetary theory and policy, the assessment of goals, tools and policies of macroeconomics, and international trade.* (Himdag Reinforced)

The two primary goals that the ABBA program addresses are:

- To strengthen academic learning that will reinforce a strong competitive spirit to participate in an ever-changing society.
 - Met by students learning to work within the cultural context of the Tohono O’odham Nation, while applying the knowledge, skills and attitudes that contribute to their success on and off the reservation, including as international business people.
- To ensure that curricular offerings are relevant to the needs of communities and individuals in fundamental skills; i.e., general reading, writing and math skills.

- Met by the college providing education to students who will be the future entrepreneurs, managers, employees, and small business owners who will provide goods and services to their communities, and strengthen the economic development of their Nation.

No summary of the outcome data was available. The ABBA program began program level outcome assessment during fall 2017. At this time, no adjustments have been made to the program as a result of learning outcome data.

Current courses in business and related discipline areas include:

Current and Related Discipline Courses in the Business Program			
Concentration	Course	Course Name	Notes & Pre-requisites
Accounting	ACC 100	Practical Accounting Procedures	None
Accounting	ACC 101	Financial Accounting	None
Accounting	ACC 102	Managerial Accounting	ACC 101 & MAT 092
Business	BUS 100	Introduction to Business	None
Business	BUS 125	Business on the Internet	None
Business	BUS 148	Business Ethics: Morals in the Workplace	None
Business	BUS 151	Mathematics of Business	MAT 082 or equivalent
Business	BUS 200	Business Law	None
Business	BUS 205	Statistical Methods in Economics & Business	MAT 172 or 173
Business	BUS 210	International Business	None
Business	BUS 220	Legal Environment of Business	None
Casino Gaming	CAG 100	Casino Gaming Industry Basics	BUS 100
Casino Gaming	CAG 111	Casino Gaming Finance & Accounting	ACT 101
Casino Gaming	CAG 122	Casino Gaming Theory & Practice	CAG 100
Casino Gaming	CAG 133	Customer Service, Management & Marketing	BUS 100
Casino Gaming	CAG 144	The Tribal Casino: Challenges and Opportunities – Capstone	Earned Casino Management Certificate w/i the semester
Economics	ECN 200	Basic Economic Principles	MAT 092
Economics	ECN 201	Microeconomic Principles	MAT 092
Economics	ECN 202	Macroeconomic Principles	MAT 092
Management	MGT 110	Human Relations in Business & Industry	None
Management	MGT 122	Supervision	None

Management	MGT 124	Small Business Management	None
Management	MGT 230	Dynamics of Leadership	None
Management	MGT 270	Computer Applications for Managers	CSA 101 or proficiency with Microsoft Office software
Management	MGT 276	Human Resources	BUS 100
Management	MGT 278	Labor/Management Relations	None
Management	MGT 280	Business Organization and Management	BUS 100 & any other MGT course
Marketing	MKT 111	Principles of Marketing	None
Mathematics	MAT 151	College Algebra	MAT 122 or placement test equivalent
Mathematics	MAT 172	Finite Mathematics	MAT 151 or placement test equivalent
Mathematics	MAT 173	Mathematics for Business I	MAT 151 or placement test equivalent
Mathematics	MAT 174	Mathematics for Business II	MAT 173
Mathematics	MAT 212	Topics in Calculus	MAT 151 or placement test equivalent
Records Information Management	RIM 132	Records Management: Filing Systems	None
Speech	SPE 120	Business & Professional Communication	None

Below is a representative sample of student evaluations of faculty for each instructor teaching in the program.

Fall 2016
Neal Wade, MBA
Introduction to Business
BUS 100

Item	Rating	Item	Rating
Rating of course	3.4	Instructor's teaching effectiveness	3.6
Cultural sensitivity	2.9	Himdag discussion	2.3
Level of learning	3.5	Respect	3.8

ABBA Program Review (11/17/2017)

In-class activities	3.4	Homework	2.9
Course material	3.4	Timely feedback	3.0
Instructor on time	3.3	Instruction clarity	3.5
Comments: What did you especially like about this course?			
I like the way Mr. Wade explains all terms from the material; he does (it) in a way that helps me understand business clearly.			
I like how clear and straightforward the lectures are. The handouts were good when studying for tests and as reference material. The examples given were also good.			
How the teacher would make sure we understood a topic, lesson, etc. If not he would reword, rephrase and give examples.			
The experiences that Neil has to share about real work environment. I enjoy the horror stories. I feel that it prepares you for the possibilities.			
All N. Wade's examples in class from his own experiences with business in the past.			
The whole business operations which largely includes management which falls in my category.			
When the instructor (undecipherable) to assure students understood information also example was really helpful			
What I really liked about the course was the experience and knowledge the instructor brought to the classroom. It had a lot of real life examples.			
Comments: What suggestions would you make to improve the course?			
I have no suggestions. The pace it's at now is good and I learn a lot with each class.			
It's pretty good the way it is now.			
None.			
I don't know			
Unsure.			
N/A			
Maybe more reading material.			

III. Program Alignment with College Mission and Purposes

- A. The ABBA program does not have its own mission statement. A recommendation is for appropriate faculty and staff to work with the TOCC Curriculum Council to develop a mission statement that is consistent with its design and program learning outcomes, and which aligns with the College's mission and goals, including Himdag.

All ABBA students must meet the College's Himdag requirement of taking HIS 122 Tohono O'odham History & Culture and THO 101 Elementary Tohono O'odham. In addition, knowledge and skills for working in a tribal environment and cultural sensitivity for Tohono O'odham and a diverse workplace are introduced in one course, reinforced in two additional courses, and assessed in another course (see curriculum map and its discussion above).

- B. To date, there are no departmental caucuses reflecting assessment of the program criteria. The assessment process is currently underway for the program level outcomes.

IV. Student Participation and Success

- A. Provide figures for enrollment in the program major for the past four years, numbers of graduates, and time to graduation.

Year	Enrolled	Graduated	Average Time to Graduate (years)
2013	40	3	3
2014	36	0	N/A
2015	56	4	1.75
2016	61	4	4.5

Enrollment increased by one-third between 2013 and 2016. Graduation increased by 25% for 2015 and 2016 from 2013. The average time for a student time to graduate, however, is becoming longer. This may due to students' need to meet writing and math prerequisites before going into higher-level courses, or for personal reasons. Additional research is needed to identify why the time for a student to graduate is increasing.

- B. Data are pending on the student surveys for satisfaction with the program and career choice.

V. Alignment with Community Needs

- A. Currently no data are available about graduates from the ABBA program during the past 4 years, whether they continue to pursue higher education, what employment they have, or where they live. The Institutional Effectiveness department will be preparing methods to capture this data in the near future.

Current enrollment for the ABBA program is 61 students total, both full-time and part-time.

- B. According to the Bureau of Labor, the outlook for Administrative Managers shows expected job growth over the next decade. Operations Specialties Managers are expected to grow by 12%; Administrative Services Managers are expected to grow by

10% and, the occupational outlook for total job growth of all business occupations is expected to be 7%.

Overall job growth in Pima County, where the majority of the Tohono O’odham Nation is located, has grown 4.5% since 2010.

- C. Currently the ABBA program does not provide students with internships or practicums in the surrounding communities; however, TOCC is currently working with the Project Success Grant group to create internships for students. The projection is for 8 students to be working in the community as paid interns each semester, beginning as early as spring 2018. This school-wide program is expected to make a positive impact on the ABBA and other TOCC business programs. Students will gain valuable experience, and the internships will increase awareness of what our students have to offer the Nation’s business community.

Employer surveys are yet to be developed for collecting data about student interns and graduates interacting in the Nation’s business community.

The latest TOCC environmental scan (2015) shows that when asked what types of jobs and business opportunities were desired, respondents ranked Business Management and Administration third out of a field of ten selections. When asked to further prioritize the selections, respondents ranked Business Management and Administration as second.

Given this information the Business department is working to develop programs that will help satisfy these priorities.

V. Human, Financial and Physical Resources

List full-time and adjunct instructors who are teaching in the program, including their degree attainment and/or evidence of known expertise.

Full-time and Adjunct ABBA Instructors			
Name	Full-time & Adjunct Instructors	Degree	Experience
Neal Wade	FT	MBA	20+ years
Wendi Cline	Adjunct	JD	20+ years
Ann Hendricks	Adjunct	Master’s	20+ years

Provide a statement attesting to the level of expertise for delivery of the program.

Mr. Wade has over 20 years of experience in management that ranges from Retail Security to Call Centers. He was responsible for \$2 million dollars in annual business, as well as developing and managing internal management intern programs. Mr. Wade earned an MBA and has several graduate-level courses that were leading to a Ph.D. Mr. Wade taught at Pima Community College (PCC) for almost 13 years where he taught a broad range of business courses and a few introductory computer science courses. In addition to PCC, Mr. Wade taught for four years as an adjunct and later as a full-time faculty at ITT-Technical Institute before its demise. Mr. Wade was also designated as the Subject Matter Expert for the Business Program for the Tucson campus.

Mrs. Hendricks has a BA in Accounting and a Master's degree in Indian Studies. She has also worked for the Tohono Nation in various consulting capacities until her recent retirement.

Ms. Cline has a Juris Doctorate and has worked in various legal firms and capacities. Ms. Cline also has several years of teaching experience in the private sector.

During the past four years, Mr. Wade attended the faculty enrichment sessions that TOCC offers every semester. He also stayed current with the world of business through various publications, videos and various televised programming. Mr. Wade attended business conferences, seminars and symposiums when funding and time permits.

There are neither retirements in the foreseeable future nor any other obvious impediments to the delivery of this program, with the exception of the small instructor size. This limits the number of classes that can be offered and taught each semester.

Mr. Wade is an active member of the Faculty Senate and Chair of the CISLC (Assessment) committee. Adjuncts instructors are not required to serve on committees or attend Senate meetings.

Mr. Wade formed and advises the TOCC Student Business club. The club is open to every TOCC student, regardless of major. Mr. Wade seeks to further encourage student interaction and provide informal leadership experience for club members. Mr. Wade also attends the various events that are on campus such as the quarterly AIHECS star parties.

At its current level of student enrollment, the physical resources for the business program seem to be adequate; however, with the current emphasis on attracting new students and increasing our enrollment, additional physical resources will be needed in the future. To handle increased student enrollment, updating the business instructional software is

needed, as well as improved connectivity of the network. The ABBA is actively developing its distance learning program, and for that, the appropriate equipment needs to be in place as well the applicable software. Additional technical support for distance education also needs to be implemented to assist students, staff and faculty when issues arise.

Provide a calculation, derived by dividing the program's total annual budget by the average annual student credit hours in the program under review.

Calculated at 470 credit hours per annum and program cost of \$104,240 for salaries, benefits, adjunct pay, and mileage. That yields an estimated cost per credit hour for the business program of \$222 per credit hour delivered.

VII. Recommendations and Preliminary Implementation Plan

As this program is designed, and approved for transfer to other Arizona schools, no recommendations are recognized at this time. There also is an Applied Science program being offered as well and it is very similar to the program described here. Keeping in line with the desires of the Tohono Nation, the Business Department needs to expand its curriculum and hire additional full-time and adjunct instructors to support it as it grows.

In the last Environmental Scan, Business Management and Administration was rated as the third most important category (out of ten) for desired job and business opportunities within the Tohono O'odham Nation. With the tribal members giving this such a high priority it is incumbent on the college, Professional Careers department and the business program to satisfy those priorities. To do this the business department is looking to the future to offer certificates, and later degrees, that will directly impact and benefit the community.

For example, certificate programs that are being designed are Small Business Management /Entrepreneurship, Organizational Leadership, and Accounting. These certificates incorporate courses that are already on the books and are intended to assist students with employment or starting their own enterprise. It is envisioned that these certificates will be converted to an Associate degree, further boosting the qualifications of the students earning those degrees. Work is also being done to ensure that these future degrees will transfer to other colleges and universities.

The Business Department, as well as the entire Professional Careers Department, is actively working to develop distance learning as a viable format for the Tohono O'odham

Nation. By working with the several formats available now, thanks to advances in technology, distance learning will provide the students more convenience in scheduling, while potentially reducing the travel needed to reach campus. Distance learning will also give the college the ability to reach potential students who want to attend TOCC, but live outside the reservation and too far away to commute to classes.

The most serious challenge that the business department is facing is the low graduation rate of the students who are business majors. In 2016, enrollment in the business program was 61 students, with only four graduates. This low graduation rate has trended this way for the last four years. We are now advising the students within the business major, which will help students plan their paths to graduation more effectively. In addition, this “in department” advising will help the Academic Dean to identify the courses needed to expedite the students’ graduation. Along with this advising, a two-year rotation plan has been implemented for offering core classes. This will assist students in the planning by having classes offered in consistent semesters.

As noted in the previous section the business program, or the Professional Careers department, will need to offer a broader range of courses to satisfy the needs of the students who are earning these certificates and degrees. This means that additional staff will need to be hired. We will need to offer courses in an expanded range of time, as well as formats and delivery methods.

One major challenge for this program is its prerequisites. A student coming in to the program who is minimally prepared could easily expand from the 60 credit hours, as described in the catalog, to 75 credit hours. The extra credits are due to the high level of required math courses. The core math courses, MAT 205 and MAT 212, may intimidate students by these additional classes and opt for another program of study. In May 2017, MAT 151 College Algebra was included in the program as a prerequisite for MAT 205 and MAT 212 to give the students the requisite math skills needed to successfully complete those two courses.

VIII. Informing Stakeholders

Once the self-studies for the Program Review are complete, send electronic copies to the President of the Faculty Senate and to the President’s Cabinet. Both entities review the completed self-study reports and make their own recommendations. Should actions be indicated, administration will work out the needed action plan with the Education Division.



Building and Construction Technologies Program Review

(1/6/2018)

Prepared by:

Robert Wambolt, LLC Director

Pauline Nasewytewa, Administrative Assistant

Reviewed and edited by:

George Miguel, M.S., Occupational Chair

I. Introduction

A. Program Description

The Associate of Applied Science degree in Building Construction Technologies (AAS) serves TOCC's Building Construction Technologies (BCT) program. Students choosing to pursue occupational goals in the fields of carpentry, heating, ventilation and air conditioning (HVAC), construction painting, heavy equipment operations, masonry, plumbing, or electrical should consider the Associate of Applied Science in Building Construction Technologies (AASC) degree and one of the Certificates that are offered. The BCT curriculum is the same as that provided by the National Center for Construction Education and Research (NCCER) and meets the U.S. Department of Labor's requirement for sponsored apprenticeship programs. TOCC's AAS degree adds on the Himdag (Cultural) requirements of a Language course and a Culture and History course. TOCC offers 3 and 4 year programs, if taken half time (6 cr. hr. per semester), or if taken full time they can be

completed in 2 years. BCT course work may be transferred to thousands of construction trade training programs throughout the nation and the world that utilize NCCER curriculum, facilitated by NCCER's national on-line data base that records each student's module and level completions.

B. Program History

The Associate of Applied Science in Building Construction Technologies (AASC) degree programs were created in 2012. Prior to 2012 the apprentices were required to take construction related technical instruction but were not awarded college credit toward a degree program. In 2012, 5 BCT programs were instituted: Carpentry, Electrical, Plumbing, Painting and Facility Maintenance.

In 2016 the BCT programs underwent major revisions. Separate BCT programs were combined into one degree program, Building and Construction Technologies, with each trade representing a different concentration. In 2017, responding to community requests, three additional concentrations were added Heavy Equipment Operator, Masonry and HVAC.

Also, in the fall semester of 2016, the BCT program instituted on-line testing for all the BCT concentrations and offered on-line support for self-study and distance learning for the Carpentry, Electrical, Plumbing, Painting, HVAC, Heavy Equipment Operators and Facility Maintenance concentrations. A new course BCT 101 Computer Literacy for Construction was created to give students the computer skills necessary to be successful in the construction industry and familiarize the students with the BCT on-line testing and support.

Three Tohono O'odham Nation high schools requested TOCC offer BCT courses to their high school students. TOCC Development certified three high school personnel as NCCER proctors and in the fall of 2016 held the first BCT 111 course at Baboquivari High School and self-pace pilot BCT courses at the Alternative High School and Baboquivari High School.

In 2016, Sif Oidak District's chairman requested TOCC teach 7 of their employees BCT 120 with OSHA 10 training. TOCC Development personal taught the courses and all 7 adult learners passed and received OSHA and NCCER cards and certificates.

In the Fall of 2017, following the U. S. Department of Education and Department of Labor's

Registered Apprentice College Consortium (RACC) model, the BCT program partnered with Hamstra Heating and Cooling to pioneer an industry partnership HVAC pilot BCT program. TOCC Development trained and certified eight Hamstra employees to be NCCER approved HVAC instructors.

In 2017 there were 57 students, all BCT AAS majors; most were registered for the Fall semester 2017 while others were working to finish previous courses for which they had received a grade of Incomplete.

At the start of the Fall semester 2017, TOCC employed 3 full-time BCT instructors in these concentrations: electrical, plumbing, and painting. One adjunct instructor taught HVAC and the Director of Operations for TOCC Development taught BCT 101, three BCT 111 classes and BCT 120 for carpentry. There were no instructors for Carpentry, Masonry, Heavy Equipment, Facility Maintenance, albeit the Director of Operation administered the carpentry concentration courses, make up work and testing. The plumbing instructor was released in September 2017. The Academic Chair of Occupational Education requested adjunct instructors be hired to fill the vacant instructor's positions.

C. Special Applications or Requirements

There are no special application processes or requirements for this program beyond students being required to take Core courses to complete the program's credit requirements. All students must complete their Arizona General Education Curriculum (AGEC) and the *Himdag* (Cultural) requirements before graduating.

It must be noted the BCT program stands as an independent course of study, separate from the apprentice program and that anyone seeking knowledge in the construction trades may enroll. Nevertheless, at the time of this program review only students that are also apprentices have enrolled in the BCT program. This creates a dilemma that profoundly effects the BCT programs retention and graduation rates. Apprentices join the apprentice program to learn a trade so that they can find a job in construction. As the apprentices are gaining knowledge in their BCT classes, they are learning trade skills on the job, they are sent to work with contractors around the Tohono O'odham Nation. Many times, the contractor offers the apprentice a full-time job. Having found a job in the construction industry the apprentice leaves the BCT program mistakenly assuming they have all the knowledge they need to have a successful career in construction. This is an industry-wide phenomenon. Often years later, the student returns to the apprentice program to resume their education and complete their training having been laid-off and finding it difficult to acquire a good paying job.

D. All Required Courses**Associate of Applied Science (AAS) BCT (2016)****Carpentry Certificates and Degree**

Students learn and apply knowledge in the four phases of carpentry: forms and framing, outside and inside finishing, trim carpentry, and interior detailing. The core topics of the carpentry program include introduction to the carpentry profession, care and use of tools and machinery, job safety, science and mathematics related to the carpentry trade, and basic blueprint reading. In addition, other topics include form building, rough framing, outside finishing, site layout, inside finishing, acoustics and drywall. TOCC offers the Basic Certificate in Carpentry and the Advanced Certificate in Carpentry as well as the Associate of Applied Science in Carpentry.

Basic Certificate in Building Construction Technologies (BCRTC)**Concentration: Carpentry**

This certificate provides basic skills and foundations that permit an applicant to enter the work force as an entry-level helper in carpentry. The coursework is based on Levels 1 and 2 of the National Center for Construction Education and Research (NCCER) curriculum in carpentry. Students who complete the Basic Certificate can progress to the Advanced Certificate and then to the Associate of Applied Science degree.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		

Fulfill Requirements	Course	Credits Required
Core Requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Carpentry Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 141H Introduction to the Carpentry Profession	6
	BCT 142H Carpentry I	6
	BCT 143H Carpentry II	6
	BCT 144H Carpentry III	6
TOTAL CREDITS - CONCENTRATION		24
TOTAL CREDIT HOURS		38

Advanced Certificate in Building Construction Technologies (ACRTC)

Concentration: Carpentry

This certificate provides advanced skill levels found in the entry-level technician/journey worker levels of the carpentry trade. Applicants with this level of skill can expect to enter the work force at an intermediate pay scale with rapid advancement, based on demonstrated skills required in carpentry. This level of employment requires good basic reading, writing, math and carpentry skills. In addition, it requires good work habits and the ability to follow instructions from supervisors to be successful in the workplace.

Students who complete the Advanced Certificate can progress to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at the Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core Requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
BCT 115H Basic Rigging	1	
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Carpentry Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 141H Introduction to the Carpentry Profession	6

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	BCT 142H Carpentry I	6
	BCT 143H Carpentry II	6
	BCT 144H Carpentry III	6
	BCT 241H Carpentry IV	6
	BCT 242H Carpentry V	6
	BCT 243H Carpentry VI	6
	BCT 244H Carpentry VII	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		62

Associate of Applied Science in Building Construction Technologies (AASC)**Concentration: Carpentry**

This degree provides additional general education coursework to support the student's advancement to supervisory positions or to pursue further education. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O'odham Himdag	HIS 122 Tohono O'odham History and Culture	3
	THO 101 Elementary Tohono O'odham	4
Communication	WRT 101 Basic Writing I	3
Mathematics	MAT 122 Intermediate Algebra or higher	3

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Humanities and Fine Arts	THO 101 meets this requirement	N/A
Social and Behavioral Science	HIS 122 meets this requirement	N/A
Computer & Information Literacy	BCT 100H Professionalism in Service for Building and Construction Technologies	N/A
	BCT 101H Computer Literacy for Construction	N/A
TOTAL CREDITS - GENERAL EDUCATION		15
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core Requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Carpentry Concentration		
Fulfill Requirements	Course	Credits Required
	BCT 141H Introduction to the Carpentry Profession	6
	BCT 142H Carpentry I	6
	BCT 143H Carpentry II	6

	BCT 144H Carpentry III	6
	BCT 241H Carpentry IV	6
	BCT 242H Carpentry V	6
	BCT 243H Carpentry VI	6
	BCT 244H Carpentry VII	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		68

Electrical Certificates and Degree

Students learn and apply knowledge in the three phases of electrician work: rough in, trim out, and troubleshooting. The core topics of the electrical program include introduction to the electrical profession, care and use of tools and machinery, job safety, science and mathematics related to the electrical trade, and basic blueprint reading. In addition, other topics include an introduction to electricity, identification of tools and materials, Romex and cable rough-in, DC and AC circuits, low voltage wiring, and underground, intermediate, and finish wiring. TOCC offers the Basic Certificate in Electrical and the Advanced Certificate in Electrical as well as the Associate of Applied Science in Electrical.

Basic Certificate in Building Construction Technologies (BCRTC) I

Concentration: Electrical

This certificate provides basic skills and foundations that permit an applicant to enter the work force as an entry-level helper in electrical work. The coursework is based on the National Center for Construction Education and Research (NCCER) curriculum in electrical.

Students who complete the Basic Certificate can progress to the Advanced Certificate and then to the Associate of Applied Science degree.

Section I – General Education Requirements		
Fulfill	Course	Credits

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Requirements		Required
Tohono O'odham Himdag	HIS 122 Tohono O'odham History and Culture	3
	THO 101 Elementary Tohono O'odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core Requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Electrical Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 171H Introduction to the Electrical Profession	6
	BCT 172H Electrical I	6
	BCT 173H Electrical II	6
	BCT 174H Electrical III	6
TOTAL CREDITS - CONCENTRATION		24
TOTAL CREDIT HOURS		38

Advanced Certificate in Building Construction Technologies (ACRTC)**Concentration: Electrical**

This certificate provides advanced skill levels found in the entry-level technician/journey worker levels of the electrical trade. Applicants with this level of skill can expect to enter the work force at an intermediate pay scale with rapid advancement, based on demonstrated skills required in electrical. This level of employment requires good basic reading, writing, math, and electrical skills. In addition, it requires good work habits and the ability to follow instructions from supervisors to be successful in the workplace. The coursework is based on the NCCER curriculum in electrical. Students who complete the Advanced Certificate can progress to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
Core Requirements	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1

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	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Electrical Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 171H Introduction to the Electrical Profession	6
	BCT 172H Electrical I	6
	BCT 173H Electrical II	6
	BCT 174H Electrical III	6
	BCT 271H Electrical IV	6
	BCT 272H Electrical V	6
	BCT 273H Electrical VI	6
	BCT 274H Electrical VII	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		62

Associate of Applied Science in Building Construction Technologies (AASC)**Concentration: Electrical**

This degree provides additional general education coursework to support a student's advancement to supervisory positions or to pursue further education. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at public Arizona universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required

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Tohono O'odham Himdag	HIS 122 Tohono O'odham History and Culture	3
	THO 101 Elementary Tohono O'odham	4
Communication	WRT 101 Writing I	3
Mathematics	MAT 122 Intermediate Algebra or higher	3
Humanities and Fine Arts	THO 101 meets this requirement	N/A
Social and Behavioral Science	HIS 122 meets this requirement	N/A
Computer & Information Literacy	BCT 100H Professionalism in Service for Building and Construction Technologies	N/A
	BCT 101H Computer Literacy for Construction	N/A
TOTAL CREDITS - GENERAL EDUCATION		15
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core Requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills	6
	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Electrical Concentration		
Fulfill Requirements	Course	Credits Required

Concentration	BCT 171H Introduction to the Electrical Profession	6
	BCT 172H Electrical I	6
	BCT 173H Electrical II	6
	BCT 174H Electrical III	6
	BCT 271H Electrical IV	6
	BCT 272H Electrical V	6
	BCT 273H Electrical VI	6
	BCT 274H Electrical VII	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		68

Heavy Equipment Operation (HEO) Certificates and Degree

Students learn and apply knowledge in the basic principles of Heavy Equipment Operation. Students will be able to use the eleven most used pieces of heavy equipment as well as explain the process of planning and executing earthmoving activities on various types of construction projects. Students will also learn about the preparation of graded surfaces using heavy equipment. Additional topics include knowledge and demonstration of uses of the types, uses, and components of six types of heavy equipment as well as the safety requirements on job sites.

TOCC offers the Basic Certificate in HEO and the Advanced Certificate in HEO as well as the Associate of Applied Science in HEO.

Basic Certificate in Building Construction Technologies (BCRTC)

Concentration: HEO

This certificate provides basic skills and foundations that permit an applicant to enter the work force as an entry-level helper in HEO work. The coursework is based on the National Center for Construction Education and Research (NCCER) curriculum in HEO. Students who complete the Basic Certificate can progress to the Advanced Certificate and then to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
Core requirements	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. HEO Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 151H Introduction to Heavy Equipment Operations Profession	6
	BCT 152H HEO II	6
	BCT 153H HEO III	6
TOTAL CREDITS - CONCENTRATION		18

TOTAL CREDIT HOURS**32****Advanced Certificate in Building Construction Technologies (ACRTC)****Concentration: HEO**

This certificate provides advanced skill levels found in the entry-level technician/journey worker levels of the HEO trade. Applicants with this level of skill can expect to enter the work force at an intermediate pay scale with rapid advancement, based on demonstrated skills required in HEO. This level of employment requires good basic reading, writing, math, and plumbing skills. In addition, it requires good work habits and the ability to follow instructions from supervisors to be successful in the workplace.

The coursework is based the NCCER curriculum in HVAC. Students who complete the Advanced Certificate can progress to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Core requirements	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. HEO Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 151H Introduction to Heavy Equipment Operations Profession	6
	BCT 152H HEO II	6
	BCT 153H HEO III	6
	BCT 251H HEO IV	6
	BCT 252H HEO V	6
TOTAL CREDITS - CONCENTRATION		30
TOTAL CREDIT HOURS		44

Associate of Applied Science in Building Construction Technologies (AASC)**Concentration: HEO**

This degree provides additional general education coursework to support a student's advancement to supervisory positions or to pursue further education. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
Communication	WRT 101 Writing I	3
Mathematics	MAT 122 Intermediate Algebra or higher	3
Humanities and Fine Arts	THO 101 meets this requirement	N/A
Social and Behavioral Science	HIS 122 meets this requirement	N/A
Computer & Information Literacy	CIS 100 Introduction to Computers	3
	BCT 100H Professionalism in Service for Building and Construction Technologies	N/A
	BCT 101H Computer Literacy for Construction	N/A
Earth Science	ANR221N Soil Science	4
	ANR 186N Water Resources	4
TOTAL CREDITS - GENERAL EDUCATION		21
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1
Core requirements	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1

	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. HEO Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 151H Introduction to Heavy Equipment Operations Profession	6
	BCT 152H HEO II	6
	BCT 153H HEO III	6
	BCT 251H HEO IV	6
	BCT 252H HEO V	6
TOTAL CREDITS - CONCENTRATION		30
TOTAL CREDIT HOURS		62

Heating, Ventilation & Air Conditioning (HVAC) Certificates and Degree

Students learn and apply knowledge in the maintenance-oriented materials and guidelines for the inspection and periodic maintenance of various HVAC systems and accessories. Students learn how to troubleshoot control circuits and electric motors found in heating and cooling equipment as well as understand the issues associated with indoor air quality and its effect on the health and comfort of building occupants. Additional topics include the procedures for the startup and shutdown of hot water, natural gas and electric air handling systems and alternative energy systems. TOCC offers the Basic Certificate in HVAC and the Advanced Certificate in HVAC as well as the Associate of Applied Science in HVAC.

Basic Certificate in Building Construction Technologies (BCRTC)

Concentration: HVAC

This certificate provides basic skills and foundations that permit an applicant to enter the work force as an entry-level helper in HVAC work. The coursework is based on the National Center for Construction Education and Research (NCCER) curriculum in HVAC. Students who complete the Basic Certificate can progress to the Advanced Certificate and then to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
Core requirements	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. HVAC I Concentration		

Fulfill Requirements	Course	Credits Required
Concentration	BCT 191H Introduction to HVAC Profession	6
	BCT 192H HVAC II	6
	BCT 193H HVAC III	6
	BCT 194H HVAC IV	6
TOTAL CREDITS - CONCENTRATION		24
TOTAL CREDIT HOURS		38

Advanced Certificate in Building Construction Technologies (ACRTC)

Concentration: HVAC

This certificate provides advanced skill levels found in the entry-level technician/journey worker levels of the HVAC trade. Applicants with this level of skill can expect to enter the work force at an intermediate pay scale with rapid advancement, based on demonstrated skills required in HVAC. This level of employment requires good basic reading, writing, math, and plumbing skills. In addition, it requires good work habits and the ability to follow instructions from supervisors to be successful in the workplace.

The coursework is based the NCCER curriculum in HVAC. Students who complete the Advanced Certificate can progress to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Fulfill Requirements	Course	Credits Required
Core requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. HVAC Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 191H Introduction to HVAC Profession	6
	BCT 192H HVAC II	6
	BCT 193H HVAC III	6
	BCT 194H HVAC IV	6
	BCT 291H HVAC V	6
	BCT 292H HVAC VI	6
	BCT 293H HVAC VII	6
	BCT 294H HVAC VIII	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		62

Associate of Applied Science in Building Construction Technologies (AASC)**Concentration: HVAC**

This degree provides additional general education coursework to support a student's advancement to supervisory positions or to pursue further education. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O'odham Himdag	HIS 122 Tohono O'odham History and Culture	3
	THO 101 Elementary Tohono O'odham	4
Communication	WRT 101 Writing I	3
Mathematics	MAT 122 Intermediate Algebra or higher	3
Humanities and Fine Arts	THO 101 meets this requirement	N/A
Social and Behavioral Science	HIS 122 meets this requirement	N/A
Computer & Information Literacy	BCT 100H Professionalism in Service for Building and Construction Technologies	N/A
	BCT 101H Computer Literacy for Construction	N/A
TOTAL CREDITS - GENERAL EDUCATION		13
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Core requirements	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. HVAC Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 191H Introduction to HVAC Profession	6
	BCT 192H HVAC II	6
	BCT 193H HVAC III	6
	BCT 194H HVAC IV	6
	BCT 291H HVAC V	6
	BCT 292H HVAC VI	6
	BCT 293H HVAC VII	6
	BCT 294H HVAC VIII	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		68

TOTAL CREDIT HOURS**62****Masonry Certificates and Degree**

Students learn and apply knowledge in the basic principles of Masonry, brick laying and building with block. Students learning how to identify the format and content of of

commercial drawings and their use in conveying specific construction requirements, including the standard format for specifications. Students will also describes the principles, equipment, and methods used to perform the site layout tasks of distance measurement and differential leveling; the layout responsibilities of surveyors, field engineers, and masons; the use of site plan drawings; and methods used for on-site communication. Additional topics include Describe the activities and techniques involved in organizing and implementing masonry construction in high-rise construction, with an emphasis on safety and logistics. TOCC offers the Basic Certificate in Masonry and the Advanced Certificate in Masonry as well as the Associate of Applied Science in Masonry.

Basic Certificate in Building Construction Technologies (BCRTC)

Concentration: Masonry

This certificate provides basic skills and foundations that permit an applicant to enter the work force as an entry-level helper in Masonry work. The coursework is based on the National Center for Construction Education and Research (NCCER) curriculum in Masonry. Students who complete the Basic Certificate can progress to the Advanced Certificate and then to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
Core	BCT 100H Professionalism in Service for Building and	1

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requirements	Construction Technologies	
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. HVAC I Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 121H Introduction to Masonry Profession	6
	BCT 122H Masonry II	6
	BCT 123H Masonry III	6
TOTAL CREDITS - CONCENTRATION		18
TOTAL CREDIT HOURS		32

Advanced Certificate in Building Construction Technologies (ACRTC)**Concentration: Masonry**

This certificate provides advanced skill levels found in the entry-level technician/journey worker levels of the HVAC trade. Applicants with this level of skill can expect to enter the work force at an intermediate pay scale with rapid advancement, based on demonstrated skills required in HVAC. This level of employment requires good basic reading, writing, math, and plumbing skills. In addition, it requires good work habits and the ability to follow instructions from supervisors to be successful in the workplace.

The coursework is based the NCCER curriculum in HVAC. Students who complete the Advanced Certificate can progress to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Masonry Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 121H Introduction to the Masonry Profession	6
	BCT 122H Masonry II	6
	BCT 123H Masonry III	6
	BCT 221H Masonry IV	6
	BCT 222H Masonry V	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		62

Associate of Applied Science in Building Construction Technologies (AASC)**Concentration: Masonry**

This degree provides additional general education coursework to support a student's advancement to supervisory positions or to pursue further education. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O'odham Himdag	HIS 122 Tohono O'odham History and Culture	3
	THO 101 Elementary Tohono O'odham	4
Communication	WRT 101 Writing I	3
Mathematics	MAT 122 Intermediate Algebra or higher	3
Humanities and Fine Arts	THO 101 meets this requirement	N/A

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Social and Behavioral Science	HIS 122 meets this requirement	N/A
	ACC 100 Practical Accounting Procedures	3
	BUS 100 Introduction to Business	3
Computer & Information Literacy	CIS 100 Introduction to Computers	3
	BCT 100H Professionalism in Service for Building and Construction Technologies	N/A
	BCT 101H Computer Literacy for Construction	N/A
TOTAL CREDITS - GENERAL EDUCATION		22
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
Core requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills	6
	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
BCT 115H Basic Rigging	1	
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Masonry Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 121H Introduction to Masonry Profession	6
	BCT 122H Masonry	6
	BCT 123H Masonry III	6

	BCT 221H Masonry IV	6
	BCT 222H Masonry V	6
TOTAL CREDITS - CONCENTRATION		30
TOTAL CREDIT HOURS		60

Construction Painting Certificate and Degree

Students learn and apply knowledge in various phases of painting work, including interior and exterior wall and finish applications, and drywall taping and finishing. The core topics of the construction painting program include introduction to the painting profession, care and use of tools and machinery, job safety, science and mathematics related to the painting trade, and basic blueprint reading. Additional topics include water and oil-based paints, cleaners and finishes, brush, roller, and spray applications, texture coating, and acoustics and drywall. . TOCC offers the Certificate in Construction Painting and an Associate of Applied Science in Construction Painting.

Certificate in Construction Painting (CRTPN)

This certificate provides advanced skill levels found in the entry-level technician and journey worker levels of the painting trade. Applicants with this level of skill can expect to enter the work force at an intermediate pay scale with rapid advancement, based on demonstrated skills required in painting. This level of employment requires good basic reading, writing, math and painting skills.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Core Requirements	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Painting Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 161H Introduction to the Construction Painting Profession	6
	BCT 162H Construction Painting I	6
	BCT 163H Construction Painting II	6
	BCT 164H Construction Painting III	6
	BCT 261H Construction Painting IV	6
	BCT 262H Construction Painting V	6
TOTAL CREDITS - CONCENTRATION		36
TOTAL CREDIT HOURS		50

Associate in Construction Painting (AASPN)

This degree provides additional general education coursework to support the student's advancement to supervisory positions or to pursue further education. Graduates of this program may also establish their own small business in the field.

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
Communication	WRT 101 Writing I	3
	STU 100 College Success Skills	1
Mathematics	MAT 122 Intermediate Algebra or higher	3
Humanities and Fine Arts	THO 101 meets this requirement	N/A
Social and Behavioral Science	HIS 122 meets this requirement	N/A
Computer & Information Literacy	CIS 100 Introduction to Computers	N/A
TOTAL CREDITS - GENERAL EDUCATION		14
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
Core requirements	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computers Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1

	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Construction Painting Concentration		
Fulfills Requirement	Course	Credits Required
Concentration	BCT 161H Introduction to the Construction Painting Profession	6
	BCT 162H Construction Painting I	6
	BCT 163H Construction Painting II	6
	BCT 164H Construction Painting III	6
	BCT 261H Construction Painting IV	6
	BCT 262H Construction Painting V	6
TOTAL CREDITS - CONCENTRATION		36
TOTAL CREDIT HOURS		60

Plumbing Certificates and Degree

Students learn and apply knowledge in the four phases of plumbing work: rough in, intermediate, finish, and service applications. The core topics of the plumbing program include introduction to the plumbing profession, care and use of tools and machinery, job safety, science and mathematics related to the plumbing trade, and basic blueprint reading. Additional topics include drain systems, waste and vent systems, domestic water supply, gas installations (LPG and Natural), and plumbing fixtures. TOCC offers the Basic Certificate in Plumbing and the Advanced Certificate in Plumbing as well as the Associate of Applied Science in Plumbing.

Basic Certificate in Plumbing (BCRTP)

This certificate provides basic skills and foundations that permit an applicant to enter the work force as an entry-level helper in plumbing work. The coursework is based on the

National Center for Construction Education and Research (NCCER) curriculum in plumbing. Students who complete the Basic Certificate can progress to the Advanced Certificate and then to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
Core requirements	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Plumbing Concentration		
Fulfill Requirements	Course	Credits Required

Concentration	BCT 180H Introduction to the Plumbing Profession	6
	BCT 181H Plumbing I	6
	BCT 182H Plumbing II	6
	BCT 183H Plumbing III	6
TOTAL CREDITS - CONCENTRATION		24
TOTAL CREDIT HOURS		38

Advanced Certificate in Plumbing – (ACRTP)

This certificate provides advanced skill levels found in the entry-level technician/journey worker levels of the plumbing trade. Applicants with this level of skill can expect to enter the work force at an intermediate pay scale with rapid advancement, based on demonstrated skills required in plumbing. This level of employment requires good basic reading, writing, math, and plumbing skills. In addition, it requires good work habits and the ability to follow instructions from supervisors to be successful in the workplace.

The coursework is based the NCCER curriculum in plumbing. Students who complete the Advanced Certificate can progress to the Associate of Applied Science degree. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona public universities.

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
TOTAL CREDITS - GENERAL EDUCATION		7
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Core requirements	BCT 100H Professionalism in Service for Building and Construction Technologies	1
	BCT 101H Computer Literacy for Construction	1
	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		7
Section III. Plumbing Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 180H Introduction to the Plumbing Profession	6
	BCT 181H Plumbing I	6
	BCT 182H Plumbing II	6
	BCT 183H Plumbing III	6
	BCT 236H Plumbing IV	6
	BCT 237H Plumbing V	6
	BCT 238H Plumbing VI	6
	BCT 239H Plumbing VII	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		62

Associate of Applied Science in Plumbing (AASPL)

This degree provides additional general education coursework to support a student's advancement to supervisory positions or to pursue further education. A portion of these courses will transfer toward a Bachelor of Applied Science (BAS) degree program at Arizona universities.

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Section I – General Education Requirements		
Fulfill Requirements	Course	Credits Required
Tohono O’odham Himdag	HIS 122 Tohono O’odham History and Culture	3
	THO 101 Elementary Tohono O’odham	4
Communication	WRT 101 Writing I	3
Mathematics	MAT 122 Intermediate Algebra or higher	3
Humanities and Fine Arts	THO 101 meets this requirement	N/A
Social and Behavioral Science	HIS 122 meets this requirement	N/A
Computer & Information Literacy	BCT 100H Professionalism in Service for Building and Construction Technologies	N/A
	BCT 101H Computer Literacy for Construction	N/A
TOTAL CREDITS - GENERAL EDUCATION		13
Section II. Core Requirements		
Fulfill Requirements	Course	Credits Required
	BCT 101H Computer Literacy for Construction	1
	BCT 120H Introductory Craft Skills or	6
	BCT 100H Professionalism in Service for Building and Construction Technologies 1	1
Core requirements	BCT 111H Basic Safety	1
	BCT 112H Basic Construction Mathematics	1
	BCT 113H Hand and Power Tools	1
	BCT 114H Blueprint Reading	1
	BCT 115H Basic Rigging	1
TOTAL CREDITS - CORE REQUIREMENTS		5

Associate of Applied Science Building Construction Technologies Program Review (AAS, BCT)

Section III. Plumbing Concentration		
Fulfill Requirements	Course	Credits Required
Concentration	BCT 180H Introduction to the Plumbing Profession	6
	BCT 181H Plumbing I	6
	BCT 182H Plumbing II	6
	BCT 183H Plumbing III	6
	BCT 236H Plumbing IV	6
	BCT 237H Plumbing V	6
	BCT 238H Plumbing VI	6
	BCT 239H Plumbing VII	6
TOTAL CREDITS - CONCENTRATION		48
TOTAL CREDIT HOURS		68

Current BCT Core requirements offer the option of replacing the 6 one hour BCT courses listed below with the 1 six hour course BCT 120

Option as Core Courses	Added as Core Courses
BCT 100H Professionalism in Service for Building and Construction Technologies	BCT 101 Computer Literacy for Construction BCT 120 Introductory Craft Skills
BCT 101H Computer Literacy for Construction	
BCT 111H Basic Safety	
BCT 112H Basic Construction Mathematics	
BCT 113H Hand and Power Tools	
BCT 114H Blueprint Reading	
BCT 115H Basic Rigging	

At this time Facilities Maintenance is not approved for the BCT AAS degree program but can be taken for BCT certificate. The Facilities Maintenance course of study is a combination of courses from the other trade concentrations and can be customized to fit the student's requests.

There are no external reviews for this program. Although the National Center for Construction Education and Research (NCCER), the curriculum provider for all BCT concentrations, revises each trade curriculum on a 4 -5 year rotating cycle.

II. Program Learning Outcomes, Curriculum and Instruction

The table below shows the AAS program's curriculum map, PLOs, and assessment methods.

Associate of Applied Science: Curriculum Map

Date and result of Curriculum Committee vote: Approved 10/28/2016

Date and result of Himdag Committee vote: Approved 10/28/2016

AAS in BCT		Required Courses (I=introduced; R=reinforced; A=assessed)				
Program Level Outcomes		BCT 101 Computer Literacy for Construction	BCT 120 Introductory Craft Skills	BCT Level 100 Courses Intro to Concentrations	BCT Level 200 Courses	BCT 200 Cap Stone Concentration Courses
1	Identify the career and					

	entrepreneurial opportunities within the construction industry. a. Identify the training opportunities within the construction industry.	I	I		R	A (Method: On-line Exams, Journeyperson Examination & Skills demonstrations)
2	Identify the skills, responsibilities, and characteristics needed to be successful in the construction industry.	I	I	I	R	A (Method: On-line Exams, Journeyperson Examination & Skills demonstrations)
3	Explain the importance of safety in the		I	I	R	A (Method:

	<p>construction industry, and describe the obligations of the contractor, subcontractors, and you to ensure a safe work environment.</p> <p>a. Describe the OSHA Outreach Training Program.</p> <p>b. Explain hazard recognition and define your role in it.</p>				<p>Complete OSHA 10 training)</p>
4	<p>Cultural Sensitivity: Students will demonstrate cultural awareness and sensitivity needed to respectfully</p>	I		I	<p>R</p> <p>A</p> <p>(Method: Exam)</p>

serve the Tohono O'odham and others in a diverse service population.					
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Each of the courses in the table is required and introduces, reinforces, or assesses one of the PLOs. All AASC graduates are assessed for their knowledge, skills and attitudes of the program content, which although it measures student abilities and knowledge, is primarily purposed to answer the question: Are students learning what the AASC claims to be teaching them?

A. The following courses represent the program of study that was in place at the time of this review

BCT Core Courses		
Course Number and Name	Course Descriptions	Cr.
BCT 101H: Computer Literacy for Construction	This course provides an introduction to computer usage in construction: logging in, internet research, emails with attachments, saving file in folders and how to access the National Center for Construction Education and Research's (NCCER) on-line curriculum support and on-line testing.	1
BCT 120: Introductory Craft Skills	This course cover all the material in and can be substituted for BCT 100, 111,112,113, 114, & 115	6

BCT 100H: Professionalism in Service Building and Construction	This course introduces procedures in business, customer service, and basic communication skills. It includes roles of individuals and companies in the construction industry, critical thinking and problem solving skills, and techniques for communicating effectively.	1
BCT 111H: Basic Safety	This course explains safety obligations of workers, supervisors and managers to ensure a safe workplace. It introduces causes and results of accidents, roles of company policies and OSHA regulations, and common job-site hazards and protections.	1
BCT 112H: Basic Construction Mathematics	This course reviews basic mathematical functions such as adding, subtracting, dividing, and multiplying whole numbers, fractions, and decimals. It also reviews basic geometry as applied to common shapes and forms.	1
BCT 113H: Hand and Power Tools	This course introduces hand and power tools that are widely used in the construction industry. It includes selection, use, safety, and maintenance procedures.	1
BCT 114H: Blueprint Reading	This course introduces basic blueprint terms, components, and symbols. It explains the different types of blueprint drawings (civil, architectural, structural, mechanical, plumbing/piping, and electrical).	1
BCT 115H: Basic Rigging and Materials Handling	This course introduces basic rigging and materials handling techniques and procedures. It explains how ropes, chains, hoists, loaders, and cranes are used to move material and equipment. The course also identifies hazards associated with materials handling and introduces appropriate equipment for common job-site tasks.	1
BCT General Education Requirements		

HIS 122: Tohono O'odham History and Culture	This course is a survey of Tohono O'odham culture, historical development, and modern issues. Includes development of culture and world view, sources of Tohono O'odham history, and role in economic and social development of northwestern Mexico and southwestern United States, and contemporary Tohono O'odham issues.	3
THO 101: Elementary Tohono O'odham I	Skills development to provide proficiency in basic communication in the Tohono O'odham language. Includes listening, speaking, reading, and writing. Also include an emphasis on examination of Tohono O'odham cultural traditions.	4
MAT 122: Intermediate Algebra	Basic algebraic functions. Includes the language of sets, lines in the plane, systems of linear equations, rational expressions and equations, radical expressions and equations, quadratics, exponents, and logarithms.	3
WRT 101: Writing I	Principles and practices of writing. Includes writing college-level essays, review of basic writing skills, and written works. Also includes narrative/descriptive, expository, and persuasive writing. May be offered in modules.	3
BCT Concentration Specific Courses		
Heavy Equipment Operators		

ANR 186N: Water Resources	Provides a basic understanding of the hydrological cycle and an overview of the processes that control water supplies to natural ecosystems and humans, giving students the knowledge they need to participate in informed decisions about water resources. The course emphasizes information and activities that are useful in the practice of agriculture and water conservation, including an introduction to rainwater harvesting principles. When possible, these topics will be addressed using examples relevant to the Tohono O'odham Nation.	4
ANR 221N: Soil Science	Fundamental principles of soil science, including the origin, nature, and classification of soils, emphasizing the chemical, physical, and biological properties in relation to growth and nutrition of plants. Useful for anyone interested in water resources, agriculture, ecology, engineering, environmental restoration, and any number of other environmental sciences. Lecture and lab are integrated in this class.	4
CIS 100: Introduction to Computers	Introduces computer information systems: components, problem solving and program/system development concepts, application of information technology and computer ethics and security. Includes applied problem solving using a spreadsheet tool.	3
Masonry		
ACC 100: Practical Accounting Procedures	Introduction to accounting systems for small businesses. Includes the basic accounting cycle, use of special journals, procedures for controlling cash, and payroll accounting.	3

BUS 100: Introduction to Business	Introduces key principles of business operations in the private enterprise system. Includes contemporary business and its environment, structure of American business, management principles of the organization, people, and production, marketing management, information systems and accounting and financing the enterprise.	
CIS 100: Introduction to Computers	See Heavy Equipment Operator	3
Painting		
STU 100: College Success Skills	Skills and techniques required for being an efficient student. Includes goal setting and problem solving, time management, organizing study materials/study techniques, college/community resources, learning styles, concentration and memory, note taking techniques, tips for making note taking easier, test taking techniques, and test anxiety.	1
Each Concentration has Trade Specific Courses Labeled I - VI or I - VIII 6 credit hour courses		
For Example,		
BCT 241H: Carpentry VI	This course continues BCT 242. It includes site layout; advanced roof, wall, and stair systems; and introduction to light construction equipment.	6

B. Describe the process used to evaluate those outcomes:

- a. Formative and summative evaluation
- b. Observations, performance-based measures

C. Provide a summary of the outcome data:

In 2013 BCT had 3 fulltime instructors, plumbing, carpentry and electrical.

For many years the related technical instruction was considered 'self-pace' and that was the case in 2013. The students were encouraged to read the modules and let the instructor know when they were ready to take the module test. The students were given an NCCER paper test. If the student passed the test the result would have to be manually entered in to the NCCER data base. Some tests were being passed but very few were entered into the NCCER data base. The instructors received 3 days of training on how to use the NCCER curriculum and registry system. Also, there was and is exceptional on-line and phone tech support and available assistance from the on campus NCCER program sponsor.

In 2016 the decision was made to move to all online testing with automatic grading and recording into the NCCER registry system, to unburden the instructors from the responsibility of having to manually enter passed tests in to the NCCER data base. What happen at this point is interesting. Many of the students that registered and attended BCT 101 and BCT 111 with their traditional classroom deliver systems were passing the on-line tests. The predominantly self-paced BCT courses, in all the trades, recorded a very small number of test passed and most of the tests that were passed were taken by a single self-motivated individual.

See below:

NCCER records data for all the modules that were passed for a program.

The following data are the number of modules that were passed by students for each concentration for **Fall semester of 2017**.

The number of students is based on the number of students in the concentration that earned wages in 2017.

Electrical 17 students passed 5 modules

Carpentry 11 students passed 28 modules; 5 students enrolled in BCT 101 & BCT 120 passed all 28 modules

Painting 8 students passed 2 modules

Plumbing 6 students passed 1 module

HVAC 12 students passed 108 modules

Passed Modules for from 8/16 - 8/17

The number of students is based on the number of students in the concentration that on-line tests were purchased for.

Electrical 14 students passed 25 modules; 1 student passed 18 modules

Carpentry 7 students passed 28 modules

Painting 6 students passed 16 modules

Plumbing 6 students passed 39 modules; 1 students passed 17 another 12

HVAC 7 pre- registered students passed 33 modules

The data suggests that the self-paced course delivery system with the secure online testing is ineffective for our student population, except for a few rare individuals. The self-motivation towards academic learning in the BCT students may not be sufficient for them to be successful in self-paced learning situations. This is reasonable, considering the BCT students are also apprentices that are seeking careers in the construction trades rather than selecting white collar careers. This same conclusion was reached independently by the staff at Baboquivari High School when in the 2016-2017 school year they, in partnership with TOCC, instituted self-paced BCT courses for the high school students with very minimal success. It is clear that more classroom instruction is need for the students to be successful.

Conversely, the BCT 120 course that was taught at North Komelik, using traditional class room delivery, resulted in all 7 students passing the course within the semester. It must be noted that the district requesting the class mandated that paper testing be used. (class not represented in the BCT information because the class was not taken for college credit)

D. A summary of the course grades for the previous 3 semesters.

Course	Year	A	B	C	D	F	I	Total
BCT 101 Computer -Construction	F-2016	3	1				4	9
BCT 100 Professionalism	F-2016	2					5	7

BCT 111 Basic Safety	F-2016	3		5	8
BCT 112 Construction Math	F-2016	2	1	4	7
BCT 113 Hand & Power Tools	F-2016	1		6	7
BCT 114 Intro Blueprints	F-2016	1		6	7
BCT 115 Intro Rigging	F-2016	1		6	7
BCT120 Intro Craft Skills	F-2016				
BCT Carpentry	F-2016	1	1	4	6
BCT Electrical	F-2016	4		4	8
BCT Plumbing	F-2016				
BCT Painting	F-2016	1		1	1
BCT 101 Computer -Construction	S-2017	1		4	5
BCT120 Intro Craft Skills	S-2017			3	3
BCT Carpentry	S-2017			4	4
BCT Electrical	S-2017			8	8
BCT Plumbing	S-2017			1	1
BCT Painting	S-2017			2	2
BCT 101 Computer -Construction	F-2017	3		4	7
BCT120 Intro Craft Skills	F-2017			6	6
BCT Carpentry	F-2017				
BCT Electrical	F-2017	1		2	3

BCT Plumbing	F-2017		
BCT Painting	F-2017	1	1

Because of this very high percentage of incompletes it was decided that we should not keep registering students that continue to get 'Incompletes'.

Therefore, the BCT program administration mandated that a student cannot register if they have a grade of 'Incomplete' in the preceding 2 semesters in their BCT concentration. This resulted in most apprentices having become ineligible with 2 Incompletes and were not registered for any class at TOCC in the Fall 2017 semester.

It must be noted, that with a moderate amount of effort by the instructor and the student, most students will have no problem passing the module tests. Most BCT courses have 4 or 5 modules only. BCT 120 has 9 modules and that is the introductory course for all trades, the Core curriculum.

E. Describe any adjustments to the program that have been made or considered because of learning outcome data.

1) The course outcome data indicate that a fundamental change in the delivery system is need. Therefore, in October 2017, the BCT program proposed and was approved by the Board of Trustees a move to all adjunct instructors with the sole responsibility of teaching their concentration in a classroom delivery method with the related lab and shop time and prescribed by the NCCER curriculum.

a) Adjunct instructors will have to be actively recruited, advertisements and job posting has not resulted in significant number of applicants.

b) The option of hiring a full-time trade instructor remains open for the right candidate under the proper circumstances

c) Adjunct instructor hired to teach the NCCER Core Curriculum for the high schools, they could also be one of the trade instructors.

2) Self-paced working on your own delivery of the courses must be modified to, self-pace but working within the mandatory weekly classroom and shop time.

a) Students paid a small stipend for attending and participating in every class period in a month, during which shop cleaning and maintenance will occur

b) Students working OJL through TERO will be excused from class attendance if the company they are working for is working at the same time as the class. The student will forfeit the stipend and still must arrange to take a weekly module test.

c) Prioritize the completion of all Incomplete courses

Provide an up-to-date list of BCT courses including prerequisites.

Concentration	Course Number and Name	Prerequisite
Core	BCT 101H Computer Literacy for Construction	None
Core	BCT 120H Introductory Craft Skills or	None
Core	BCT 100H Professionalism for Building and Construction	None
Core	BCT 101H Computer Literacy for Construction	None
Core	BCT 111H Basic Safety	None
Core	BCT 112H Basic Construction Mathematics	None
Core	BCT 113H Hand and Power Tools	None
Core	BCT 114H Blueprint Reading	None
Core	BCT 115H Basic Rigging	None
Carpentry	BCT 141H Introduction to the Carpentry Profession	BCT 120
Carpentry	BCT 142H Carpentry I	BCT 141H
Carpentry	BCT 143H Carpentry II	BCT 142H

Carpentry	BCT 144H Carpentry III	BCT 143H
Carpentry	BCT 241H Carpentry IV	BCT 144H
Carpentry	BCT 242H Carpentry V	BCT 241H
Carpentry	BCT 243H Carpentry VI	BCT 242H
Carpentry	BCT 244H Carpentry VII	BCT 243H
Electrical	BCT 171H Introduction to the Electrical Profession	BCT120
Electrical	BCT 172H Electrical I	BCT 171H
Electrical	BCT 173H Electrical II	BCT 172H
Electrical	BCT 174H Electrical III	BCT 173H
Electrical	BCT 271H Electrical IV	BCT 174H
Electrical	BCT 272H Electrical V	BCT 271H
Electrical	BCT 273H Electrical VI	BCT 272H
Electrical	BCT 274H Electrical VII	BCT 273H
Masonry	BCT 121H Introduction to Masonry Profession	BCT 120
Masonry	BCT 122H Masonry	BCT 121H
Masonry	BCT 123H Masonry III	BCT 122H
Masonry	BCT 221H Masonry IV	BCT 123H
Masonry	BCT 222H Masonry V	BCT 221H
HVAC	BCT 191H Introduction to HVAC Profession	BCT 120
HVAC	BCT 192H HVAC II	BCT 191H
HVAC	BCT 193H HVAC III	BCT 192H

HVAC	BCT 194H HVAC IV	BCT 193H
HVAC	BCT 291H HVAC V	BCT 194H
HVAC	BCT 292H HVAC VI	BCT 291H
HVAC	BCT 293H HVAC VII	BCT 292H
HVAC	BCT 294H HVAC VIII	BCT 293H
HEO B	BCT 151H Introduction to Heavy Equipment Operations Profession	BCT 120
HEO	BCT 152H HEO II	BCT 151H
HEO	BCT 153H HEO III	BCT 152H
HEO	BCT 251H HEO IV	BCT 153H
HEO	BCT 252H HEO V	BCT 251H
Painting	BCT 161H Introduction to the Construction Painting Profession	BCT 120
Painting	BCT 162H Construction Painting I	BCT 161H
Painting	BCT 163H Construction Painting II	BCT 162H
Painting	BCT 164H Construction Painting III	BCT 163H
Painting	BCT 261H Construction Painting IV	BCT 164H
Painting	BCT 262H Construction Painting V	BCT 261H
Plumbing	BCT 180H Introduction to the Plumbing Profession	BCT 120
Plumbing	BCT 181H Plumbing I	BCT 180H
Plumbing	BCT 182H Plumbing II	BCT 181H
Plumbing	BCT 183H Plumbing III	BCT 182H
Plumbing	BCT 236H Plumbing IV	BCT 183H

Plumbing	BCT 237H Plumbing V	BCT 236H
Plumbing	BCT 238H Plumbing VI	BCT 237H
Plumbing	BCT 239H Plumbing VII	BCT 238H

Draft

Provide a representative sample of student evaluations of faculty for each instructor teaching in the program.

Compiled by Assessment Coordinator Richard Lee on a of 0-4 scale

Summer 2017

OSHA 10 – BCT 111

Robert Wambolt

- Preparation for class: 3.9
- Demonstration of subject knowledge: 3.8
- Communicated clearly: 3.8
- Organization of material: 3.8
- Encouraged questions and discussion: 3.9
- Treated students with respect: 3.9
- Showed enthusiasm: 3.9

Consolidated comments:

- too many people walking out and on cell phones, people (need to) be on time, too much distraction
- always ready to start, demonstrated some real life injuries, good with people and friendly, good demonstration on a lot of things
- very professional
- was ready to rock, knew a lot, had real-life examples, was on point, had materials ready before class, let people be open and outspoken, very respectful, full of energy
- prior training in instruction, body harness, handouts, student participation (teams), experiences (do's / don't's)
- was fully descriptive about each slide and subject, was very punctual about everything, wanted (us) to give him our opinions, and what we would do in that certain scenario, excellent
- good

What did students like about the course?

- was interesting, something new
- There were a lot of good demonstration on a lot of things
- very informative and plenty of helpful information
- learned information that will keep us alive
- he was on point and didn't waste time
- informative
- the group projects
- the depth it went on every subject
- was very knowledgeable, informative, helped out a lot
- That we all learned basic safety
- donuts, Gatorade, safety was informative
- very informative and updated data regarding OSHA standards
- that it is available on the Nation
- I liked learning knowledge of safety and hazards on the worksite
- informative demonstrations
- I liked the knowledge that was said about what is safety and how to be (safe).
- donuts - everyone participated
- very informative
- stories for examples on what can happen or what they're talking about

What about the course could be improved?

- I think nothing - it was all good for me
- less days, maybe only two instead of three, bigger classroom
- all the information being taught
- go out to field and see and work safety examples
- update photos
- you will get better with time
- don't know
- more slides
- it was all good
- turn up the AC, warm air made me sleepy
- it was good the way it was
- more definition of unfamiliar words
- I think there could be better pictures and the screens (are) kind of hard to see
- projector bigger and readable
- more snacks
- everything - great info! thanks!

The BCT Instructor evaluations for the 'Program Review' would be difficult to interpret considering the mostly self-paced nature of the BCT courses.

Fall 2017**Verline Andrews****Electrical Concentration**

1. Please rate this course from one to four 3
2. Please rate the instructor's teaching effectiveness. 3.5

3. Rate the degree of cultural sensitivity you believe the teacher showed in this course. 3.17
4. Was Himdag – O'odham cultural ways – discussed in the class? 2.17
5. I would describe the level of learning I have achieved in this class as 3
6. Rate the degree to which you were treated with respect in this course 3.33
7. Rate the usefulness of in-class activities in helping you learn (lectures, discussions, etc.). 3.33
8. Rate the usefulness of outside assignments (homework, projects, reports, etc.) in helping you learn. 3.17
9. Rate the degree of usefulness of course materials. 3.17
10. The instructor was timely in giving feedback on assignments: 3
11. Rate the instructor in terms of being on time for classes 3.17
12. How clear were the instructions the teacher gave you for assignments? 3.33
13. What did you especially like about this course?

The People

Going out to work on projects

Hands on and Discussion

Always learning new things

The Outdoors

14. What suggestions would you make to improve this course?

Actual in class work

No Computer testing, only paper easier to identify areas where I need help

Some feedback on quizzes

Better team work among apprentices

More Food

Gender: 2/6 female, 4/6 male, 0/6 not given

The students contact with the instructor is mostly through On the Job Learning (OJL) and but were asked to evaluate the instructor based solely on the classroom portion of their training. Understandably it was hard for the students to differentiate between the 2 forms of learning as evidence by the responses: Going out to work on projects, The Outdoors. One student may have distorted the results by not taking the

evaluation seriously responding with all 4s on the multiple-choice questions and The Outdoors & More Food on the fill in questions. A telling response: "Actual in class work" suggest a greater emphasis on the BCT classroom learning is needed.

Gender: 12 male,

Overall, students seem to be generally satisfied with the course offerings, the rigor provided and summative outcomes.

III. Program Alignment with College Mission and Goals

As an accredited and land grant institution, TOCC's mission is to enhance our unique Tohono O'odham Himdag by strengthening individuals, families, and communities through holistic, quality higher education services. These services will include research opportunities and programs that address academic, life, and development skills

- A. "strengthening individuals, families, and communities" The skills that the students learn empower them to earn the money to supports themselves and their families. Also, the students become a more valuable member of the community by using their acquired construction skills to repair, build and service building in their community.
- B. Our core value: T-Apedag – Our Well-Being – The BCT program provides the knowledge that individuals need to achieve a successful life. This strengthens the individual both physically with the ability to preform valuable work and mentally with improved confidence and understanding.

- C. Our core value: I-We:mta – Working Together – The BCT curriculum teaches the student about team work and the value of cooperation. Then with the hands-on portion of the training the student experience team work in action as the students learn to work together toward a common goal.
- D. T-Pi:k Elida – Our Deepest Respect – the BCT students display their respect for the land and the people by learning sustainable and renewable ways of building and use that knowledge to serve the community through Elder and community projects.

Section IV. Student Participation and Success

- A. Below are enrollment figures for students majoring in the program over the past four years, the number of graduates and the length of time students took to graduate from the program.

Year	Enrolled	Full-time	Part-time	Graduated	Average Time to Graduate (years)
2014	25	0	25	0	7
2015	24	0	24	0	8
2016	22	0	22	0	8
2017	16	0	16	0	7

At this time the BCT programs are so closely tied to the apprenticeship program that it only makes sense to evaluate the BCT program in light of the apprenticeship program. Although in the last 4 years there has been no BCT graduates the apprentice program has graduated (issued Journeymen Certificate and Cards) 7 students, with 6 more students on track to complete the program in 2018. Many more students leaving the program to starting full-time job in the construction industry with the skills they learned in their BCT courses and OJL. The decreasing enrollment does not accurately reflect the number of student attending. Many students, as many as 30 in 2017, are working on 'Incompletes' they received in earlier semesters.

- B. Include any student survey data on satisfaction with the program and career choice.

TOCC data not available.

Section V. Alignment with Community Needs

- A. Provide information about graduates from the program during the past 4 years, to include higher education they may be pursuing, or did pursue, employment they have, and locale of residence.

Every District and most villages on the Tohono O’odham Nation have workers that provide repair services for the community, and skilled worker are in short supply. Virtually every district worker has been part of the apprentice program and before that the skills center and some point in their career.

- B. Labor market for skilled construction workers remain high and is predicted to continue to grow in all BCT concentrations, see the following Labor statistics.

- C. On the Tohono O’odham Nation there are many BCT positions that remain open for lack of qualified crafts men and women. The Tribal Rights Employment Ordinance or Office (TERO) advertise weekly positions for construction workers and must let the job go to non-native persons because of lack of O’odham journeymen.

OCCUPATION PROFILE –ARIZONA and UNITED STATES

U.S. Bureau of Labor Statistics

Occupational Employment and Wages, May 2016

Arizona Labor Statistics, May 2016

Heating, Air Conditioning, and Refrigeration Mechanics and Installers

Install or repair heating, central air conditioning, or refrigeration systems, including oil burners, hot-air furnaces, and heating stoves.

Industry	Employment (1)	Percent of industry	Hourly mean wage	Annual mean wage
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		employment		(2)
Building Equipment Contractors	212,810	10.68	\$22.72	\$47,250
Direct Selling Establishments	9,410	7.07	\$23.61	\$49,100
Hardware, and Plumbing and Heating Equipment and Supplies Merchant Wholesalers	8,070	3.27	\$24.90	\$51,790
Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	6,170	3.03	\$23.90	\$49,710
Personal and Household Goods Repair and Maintenance	1,810	2.38	\$22.11	\$46,000

Masonry

Lay and bind building materials, such as brick, structural tile, concrete block, cinder block, glass block, and terra-cotta block, with mortar and other substances to construct or repair walls, partitions, arches, sewers, and other structures. Excludes "Stonemasons" (47-2022). Installers of mortarless segmental concrete masonry wall units are classified in "Landscaping and Groundskeeping Workers"

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Other Specialty Trade Contractors	89,790	14.01	\$24.15	\$50,220
Highway, Street, and Bridge Construction	43,470	13.25	\$27.27	\$56,710
Coal Mining	7,010	13.11	\$26.14	\$54,360
Nonmetallic Mineral Mining and Quarrying	10,790	11.52	\$21.50	\$44,720
Other Heavy and Civil Engineering Construction	12,450	11.25	\$26.07	\$54,230

Plumbing

Assemble, install, alter, and repair pipelines or pipe systems that carry water, steam, air, or other liquids or gases. May install heating and cooling equipment and mechanical control systems. Includes sprinklerfitters.

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Building Equipment Contractors	300,510	15.09	\$27.10	\$56,380
Ship and Boat Building	5,460	4.01	\$23.98	\$49,890
Natural Gas Distribution	4,480	3.96	\$31.35	\$65,210
Pipeline Transportation of Natural Gas	1,160	3.94	\$28.03	\$58,290
Water, Sewage and Other Systems	1,500	3.04	\$23.82	\$49,540

Heavy Equipment Operators

Operate one or several types of power construction equipment, such as motor graders, bulldozers, scrapers, compressors, pumps, derricks, shovels, tractors, or front-end loaders to excavate, move, and grade earth, erect structures, or pour concrete or other hard surface pavement. May repair and maintain equipment in addition to other duties. Excludes "Crane and Tower Operators" (53-7021) and "Extraction Workers"

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Highway, Street, and Bridge Construction	(8)	(8)	\$38.10	\$79,240
Residential Building Construction	2,370	0.33	\$33.27	\$69,210
Building Finishing Contractors	2,450	0.32	\$32.95	\$68,540
Local Government (OES Designation)	420	0.01	\$31.45	\$65,410

Nonresidential Building Construction	3,460	0.46	\$30.03	\$62,450
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Painters

Paint walls, equipment, buildings, bridges, and other structural surfaces, using brushes, rollers, and spray guns. May remove old paint to prepare surface prior to painting. May mix colors or oils to obtain desired color or consistency.

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Building Finishing Contractors	143,890	18.78	\$19.36	\$40,270
Residential Building Construction	14,900	2.08	\$19.30	\$40,140
Ship and Boat Building	1,380	1.02	\$21.34	\$44,380
Nonresidential Building Construction	6,710	0.89	\$20.28	\$42,190
Highway, Street, and Bridge Construction	2,810	0.86	\$22.99	\$47,820

Carpentry

Construct, erect, install, or repair structures and fixtures made of wood, such as concrete forms; building frameworks, including partitions, joists, studding, and rafters; and wood stairways, window and door frames, and hardwood floors. May also install cabinets, siding, drywall and batt or roll insulation. Includes brattice builders who build doors or brattices (ventilation walls or partitions) in underground passageways

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Residential Building Construction	205,510	28.73	\$21.83	\$45,420

Nonresidential Building Construction	118,680	15.65	\$25.32	\$52,670
Building Finishing Contractors	110,510	14.42	\$24.22	\$50,370
Foundation, Structure, and Building Exterior Contractors	87,990	10.41	\$21.68	\$45,090
Other Heavy and Civil Engineering Construction	6,250	5.64	\$27.32	\$56,820

Electricians

Install, maintain, and repair electrical wiring, equipment, and fixtures. Ensure that work is in accordance with relevant codes. May install or service street lights, intercom systems, or electrical control systems. Excludes "Security and Fire Alarm Systems Installers"

Industry	Employment (1)	Percent of industry employment	Hourly mean wage	Annual mean wage (2)
Building Equipment Contractors	439,090	22.04	\$26.80	\$55,730
Coal Mining	2,530	4.74	\$28.64	\$59,580
Tobacco Manufacturing	520	4.01	\$31.55	\$65,610
Ship and Boat Building	5,370	3.94	\$24.96	\$51,920
Iron and Steel Mills and Ferroalloy Manufacturing	3,230	3.85	\$31.30	\$65,100

National Labor Statistics, May 2016

U.S. Bureau of Labor Statistics

Occupational Employment and Wages, May 2016

Heating, Air Conditioning, and Refrigeration Mechanics and Installers	
2016 Median Pay	\$45,910 per year
	\$22.07 per hour
Typical Entry-Level Education	Postsecondary nondegree award
Work Experience in a Related Occupation	None
On-the-job Training	Long-term on-the-job training
Number of Jobs, 2016	332,900
Job Outlook, 2016-26	15% (Much faster than average)
Employment Change, 2016-26	49,100

Construction Equipment Operators	
2016 Median Pay	\$45,040 per year
	\$21.65 per hour
Typical Entry-Level Education	High school diploma or equivalent
Work Experience in a Related Occupation	None
On-the-job Training	Moderate-term on-the-job training

Number of Jobs, 2016	426,600
Job Outlook, 2016-26	12% (Faster than average)
Employment Change, 2016-26	52,800

Plumbers, Pipefitters, and Steamfitters	
2016 Median Pay	\$51,450 per year
	\$24.74 per hour
Typical Entry-Level Education	High school diploma or equivalent
Work Experience in a Related Occupation	None
On-the-job Training	Apprenticeship
Number of Jobs, 2016	480,600
Job Outlook, 2016-26	16% (Much faster than average)
Employment Change, 2016-26	75,800

Construction and Maintenance Painters	
2016 Median Pay	\$37,570 per year
	\$18.06 per hour
Typical Entry-Level Education	No formal educational

	credential
Work Experience in a Related Occupation	None
On-the-job Training	Moderate-term on-the-job training
Number of Jobs, 2016	381,500
Job Outlook, 2016-26	6% (As fast as average)
Employment Change, 2016-26	23,400

Masonry Workers	
2016 Median Pay	\$41,330 per year
	\$19.87 per hour
Typical Entry-Level Education	See How to Become One
Work Experience in a Related Occupation	None
On-the-job Training	See How to Become One
Number of Jobs, 2016	292,500
Job Outlook, 2016-26	12% (Faster than average)
Employment Change, 2016-26	34,500

Electricians	
2016 Median Pay	\$52,720 per

	year
	\$25.35 per hour
Typical Entry-Level Education	High school diploma or equivalent
Work Experience in a Related Occupation	None
On-the-job Training	Apprenticeship
Number of Jobs, 2016	666,900
Job Outlook, 2016-26	9% (As fast as average)
Employment Change, 2016-26	60,100

Carpenters	
2016 Median Pay	\$43,600 per year
	\$20.96 per hour
Typical Entry-Level Education	High school diploma or equivalent
Work Experience in a Related Occupation	None
On-the-job Training	Apprenticeship
Number of Jobs, 2016	1,025,600
Job Outlook, 2016-26	8% (As fast as average)
Employment Change, 2016-26	87,000

National and state Data Source: Bureau of Labor Statistics, Occupational Employment Statistics Survey

Section VI. Human, Financial and Physical Resources

The table below shows the full-time and adjunct instructors teaching in the program, including their degree attainment and evidence of their known expertise.

Name	FT /Adj	Degree
Verline Andrews	Full-time	Journey Person
Bernard Mandre	Full-time	Journey Person
Wade Hamstra	Adjunct	Master's
Robert Wambolt	Acting	Bachelor's

Verline Andrews has 15 years of experience in the electrical field and has been electrical instructor at TOCC for 5 years.

Bernard Mandre has 15 years of experience in the painting field and has been painting instructor at TOCC for 1 years.

Wade Hamstra is the co-owner of Hamstra Heating and Cooling and has a Master's of Business Administration from the University of Arizona. Mr. Hamstra has taught at TOCC for one semester.

Robert Wambolt is a AZ licensed contractor, NCCER Master Trainer, DOL apprenticeship sponsor, OSHA authorize training instructor and has a Bachelor's degree in mathematics from Prescott College. Mr. Wambolt has worked at TOCC for 9 years.

Section VII. Recommendations and Preliminary Implementation Plan

A. Provide recommendations for the future of the program based on the results of the self-study.

Results

The self-study of the BCT program documents the fact that the students in the concentrations with the full-time instructors are not passing sufficient modules (tests). We can assume that the full-time instructors are not emphasizing the BCT courses as a vital part of the apprentice program. There are several factors that contribute to the problems. The instructors are hired with a twofold responsibility: to teach the BCT courses in their respective concentrations and work with TOCC Development to provide on the job learning (OJL) opportunities for the apprentices. This creates the tendency to over-emphasize one responsibility and neglect the other and the resulting reality is that neither the teaching of the BCT courses nor the creation of OJL opportunities are being performed at acceptable levels.

Recommendations

This program review deals with the BCT program, not the BCT program as they are a part of the apprenticeship program. Therefore, the following recommendation deal only with the BCT program as they are a part of the greater college wide academics.

1. Hire adjunct instructors to teach the BCT courses. Teaching only the BCT courses of one concentration does not provide enough work to warrant a full-time instructor. The adjunct instructor's only responsibility would be to teach the BCT courses with the associated duties using NCCER curriculum and on-line testing. This would focus the instructor's efforts on success in the BCT courses since they would no longer have a responsibility to TOCC Development and the OJL aspect of the apprentice program. The BCT courses are 6 credit hours so the adjunct instructor would teach and be paid for 6 hours per week.

2. Facilitate the inclusion of the BCT adjunct instructor in the academic culture of the college with requirements to attend meetings and participate on committees along with the other TOCC faculty.

Draft

1. Recommended Program Outcomes

Identify the career and entrepreneurial opportunities within the construction industry.

a. Identify the training opportunities within the construction industry.

Identify the skills, responsibilities, and characteristics needed to be successful in the construction industry.

Explain the importance of safety in the construction industry, and describe the obligations of the contractor, subcontractors, and you to ensure a safe work environment.

a. Describe the OSHA Outreach Training Program.

b. Explain hazard recognition and define your role in it.

Cultural Sensitivity: Students will demonstrate cultural awareness and sensitivity needed to respectfully serve the Tohono O'odham and others in a diverse service population.

- Professional ethics: Students will demonstrate an understanding of the importance of professional ethics and the ability to identify situations in which there may be ethical dilemmas and how to appropriately mitigate them.

2. Recommendations for Growth and Retention

One of potential area of concern is the change in emphases, prioritizing class work, attendance and will take some adjusting for the student's and consistency for the instructors and administrations. Also, the West Valley Casino project has the potential to relocate the majority of the BCT students to Glendale AZ for 12 -24 months.

a. Instructors and or administrators make regular visit to Glendale for testing and support for the students working on the west Valley casino

b. Help students get relocated by purchasing tool and lodging for 2 weeks to be paid back with automatic payroll deductions when they return to Sells.

c. Pay the apprentices a stipend for non - OJL work that they do. They would be eligible to receive the stipend if they met with their adjunct instructor every class period in the month for instruction, skills testing, module testing and trade shop cleaning, organization and maintenance.

3. Recommendations for Strengthening the BCT Programs

Additional changes for strengthening the program include: 1) student recruitment; 2) community partnership development and development of practicum opportunities; 3) Student advising.

- Student recruitment: Work with the High School to create a viable career path for students to enter the construction industry by developing BCT courses offered at the high schools. This has proven to be an effective strategy. 5 students that just graduated in May from Baboquivari High School, the school were TOCC had taught the BCT courses, enrolled in BCT courses the following August.
- Continue to develop new industry partnerships and cultivate existing partnerships with TOUA Water, T.O. Solid Waste, Ki-ki, Hamstra Heating and Cooling and Signal Mountain Construction.
- Student advising: With adjunct instructors meeting with students regularly in an academic setting that will help to keep the students focus on their studies and progressing their programs.

B. Describe the potential trajectory and development of the program during the coming four years.

The Tohono O’odham Nation and Southern Arizona currently has a great need for trained construction worker. The need for skilled craftsmen and women is predicted to remain strong for the next decade.

In 2017 the BCT program added 3 concentrations Heavy Equipment Operator, Masonry and & HVAC in response to the community needs and request from TERO and T.O. Solid Waste. The success of these program depends in part on establishing strong industry partnerships.

TOCC will expand the BCT Electrical program to include a Solar Power emphasis. No other concentrations are anticipated to be added at this time.

C. Describe how challenges identified in the self-study will be addressed and provide an estimate of the human, physical, and fiscal resources that will be needed.

One of the challenges that was met during this review process was the hiring of adjuncts instructors. TOCC began posting job opening for an adjunct carpentry instructor in May and in 8 months have not filled the position.

- 1) Advertise the adjunct instructor position in the newspapers of surrounding cities and towns
2. Recruit adjunct instructor from our new and existing community partners.

Employing adjunct instructor will save the college approximately \$40,000 per year per position.

Section VIII. Informing Stakeholders

Once this Program Review is complete, electronic copies will be sent to the President of the College and to the Department Chair of Occupational Education. Both entities will review the completed program review reports to make their own recommendations. Should actions be indicated, the administration will develop an appropriate action plan with the Education Division.



HLC Report Criteria Met with Concerns

MARIO MONTES-HELU, PHD.

Criterion 3 - Teaching and Learning, Quality, Resources, and Support.

- ▶ The team recommends that Tohono O'odham Community College submit to HLC an interim report, by January 31, 2018, which details **a specific plan including timeline for evaluating faculty**.
- ▶ The plan may include the following elements and it is recommended that it be approved by the Faculty Senate prior to submission and disseminated among the TOCC community appropriately

Core Component 3.C

- ▶ Classroom observation, using agreed upon standards, by a qualified peer or reviewer.
- ▶ Professional activities such as:
 - ▶ attendance at professional conferences
 - ▶ presentations at conferences
 - ▶ participation in regional conferences
 - ▶ Publications
- ▶ NOTE: a separate presentation follows to discuss these points.

Core Component 3.C

- ▶ Service to the community
- ▶ Student end of course evaluations
- ▶ Self-assessment, including goals for coming year
- ▶ A review of student success in the class
- ▶ A review of the incorporation and appropriate use of Himdag in their courses
- ▶ A review of appropriate assessment completed in their programs and courses
- ▶ A review of prior assessments
- ▶ Action plans as appropriate as a result of the evaluations.

Core Component 3.C

- ▶ The team recommends that Tohono O'odham Community College **include** in the four year comprehensive evaluation, **data from these evaluations** indicating the number of evaluations completed and any actions taken as a result of the evaluations.

Criterion 4: Teaching and Learning: Evaluation and Improvement

- ▶ To provide to HLC an interim report including completed program reviews consistent with the TOCC Program review Plan that reflects best practice. Program Reviews were also a topic of the 2012 Report. At that time it was suggested that "the college could develop a comprehensive plan for the review of all programs." Program Review appears to still be planned, rather than implemented.

Section 5 of Internal Program Review Self-Study

- ▶ Section 5. Program Learning Outcomes, Curriculum and Instruction (Provided and distributed by President Robertson):
 - ▶ **Provide program learning outcomes; describe the process used to evaluate those outcomes; provide a summary of the outcome data; and describe any adjustments to the program that have been made or considered as a result of learning outcome data.**
 - ▶ Provide an up-to-date list of course descriptions, including prerequisites.
 - ▶ Describe the pedagogy and techniques (e.g. hybrid, community learning, constructivist approaches, service learning) involved in innovations in teaching.
 - ▶ Provide a representative sample of student evaluations of faculty for each instructor teaching in the program.

Core Component 4.A

- ▶ **Provide program learning outcomes; describe the process used to evaluate those outcomes; provide a summary of the outcome data; and describe any adjustments to the program that have been made or considered as a result of learning outcome data**
- ▶ Core Component 4.A:
 - ▶ Programmatic outcomes assessment
 - ▶ An analysis based on data of program strengths and weaknesses
 - ▶ Strategies for building on strengths and weaknesses
 - ▶ Plans for future directions for the programs, for all Associate Degrees and Certificates
- ▶ **Actions**
 - ▶ Program Area Chairs lead faculty in the modification of Section 5, bullet one of the Program Review to fit Core Component 4.A

Core Component 4.A: AGEC

- ▶ **Assessment of the outcomes of the Arizona AGEC certificate**
 - ▶ Has TOCC **defined** AGEC Learning Outcomes?
- ▶ **Learning Outcomes (Pima Community College)**
 - ▶ Upon successful completion of the Arizona General Education Curriculum (AGEC-A, AGEC-B or AGEC-S) program, the learner will be able to:
 - ▶ Effectively communicate information, ideas and/or arguments appropriate to the audience and purpose.
 - ▶ Identify and investigate problems and develop creative, practical, and ethical solutions by evaluating information and using appropriate methods of reasoning.
 - ▶ Use mathematical and scientific processes, procedures, data, or evidence to solve problems.
 - ▶ Locate, evaluate, and use information from diverse sources in an effective and ethical manner.
 - ▶ Demonstrate understanding of the values and influence of diverse cultural, historical, and global perspectives.
- ▶ **Actions**
 - ▶ TOCC assessment committee leads in the adoption or creation of new AGEC learning outcomes

Core Component 4.A

- ▶ A schedule for ongoing program reviews for both curricular and co-curricular offerings

Programs (Note: all Associate degrees and Certificates within a discipline)	Program Review – Initial Round – dates of completion (2016/2017)	4-year cycles of review (after 2016/2017)
Science	December 2016	2020
Liberal Arts	December 2016	2020
Agriculture and Natural Resources	January 2017	2021
Office & Administrative Professions	August 2016	2019
Gaming	NA	2018
Fine Arts	NA	2018
Social Services	August 2016	2019
Business	August 2016	2019
Early Childhood Education	August 2016	2020
Tohono O'odham Studies	NA	2020
Building and Construction Technologies	January 2017	2020

- ▶ **Action**

- ▶ Program Area Chairs review schedule by November

Core Component 4.A

- ▶ Data from Institutional Research
 - ▶ Program persistence and completion rates, enrollment and/or participation for each program
 - ▶ Program employment and transfer data

Summary of requested Actions

▶ **Actions**

- ▶ Program Area Chairs lead faculty in the modification of Section 5, bullet one of the Program Review to fit Core Component 4.A

▶ **Actions**

- ▶ TOCC assessment committee leads in the adoption or creation of new AGEC learning outcomes

▶ **Action**

- ▶ Program Area Chairs review schedule by November

**Tohono O’odham Kekel Ha-Maşcamakuđ
Board of Trustees Regular Meeting
November 9, 2017
S-ke:g S-he:pijig Maşad
“Month of the Pleasant Cold and of Traditional Games”**

Call to Order/Roll Call

This meeting was called to order by Board Chairwoman, Ofelia Zepeda at 9:29 AM.

Present	Excused Absence	BOARD OF TRUSTEES:
X		Ofelia Zepeda, Chair
X		Bernard Siquieros, Vice Chair
X		Anthony Chana, Secretary
	X	Elizabeth “Libby” Francisco, Member
X		Jonas Robles, Member
		CABINET MEMBERS:
X		Paul Robertson, President
X		Juana Jose, VP of Education
X		Sylvia Hendricks, VP of Student Services
X		Joann Miguel, Interim VP – Admin & Finance
X		Mario Montes-Helu, Academic Chair
X		George Miguel, Occupational Chair
		Recorder:
X		Francina Francisco, Sr. Administrative Assistant
		Guests:
X		Annabah Conn, Director of Institutional Research
X		Ben Jose, Research Assistant
X		Jane Latane, Consultant
X		Augustine Toro, Director of Land Grant Office for Sustainability
X		Rodney Aguilla, Student Senate President
X		Neal Wade, Business Instructor
X		Naomi Tom, Academic Advisor
X		Kristen Eberhardt, Title III Director
X		Clovia Martin, Student
X		Juana V. Jose, Student
X		Ingrid Segundo, Sponsored Projects Coordinator

EXECUTIVE SUMMARY

On November 9, 2017, TOCC Board of Trustee Meeting accepted/approved the following:

- September 14, 2017 Minutes
- Tabled October 12, 2017 Minutes
- September 2017 Monthly Financial Statements
- November 2017 Human Resources Report
- Recruiter/Transition Coordinator Position Reclassification
- Policy Changes to Faculty Handbook as it relates to field trips and driving college vehicles
- Program Reviews for: Science, Social Science, Business and Liberal Arts Open Pathways programs

Invocation by Jonas Robles

Review & Approval of Agenda – no changes, additions or deletions.

MOTION: Motion was made by Bernard Siquieros to approve the agenda as presented, second by Anthony Chana.				
MOTION / SECOND	FOR	AGAINST	ABSTAIN	ABSENT
Siquieros/Chana	4	0	0	1
Motion Approved.				

Call to the Audience

Juana Lopez’s concern was adding more classrooms rather than a multipurpose building; she felt that the college was benefiting faculty and staff rather than the needs of the students.

Announcements and Upcoming Events

A lunch will be served in appreciation of Apprentice students who helped build the patio structure. Lunch will be catered by BrushFire BBQ of Tucson.

Minutes for Approval

September 14, 2017 Minutes – no changes

MOTION: Motion was made by Anthony Chana to approve the September 14, 2017 minutes, second by Bernard Siquieros.				
MOTION / SECOND	FOR	AGAINST	ABSTAIN	ABSENT
Chana/Siquieros	4	0	0	1
Motion Approved.				

October 12, 2017 Minutes – tabled for approval

MOTION: Motion was made by Bernard Siquieros to table the October 12, 2017 Minutes pending review of the Board Secretary, second by Anthony Chana.				
MOTION / SECOND	FOR	AGAINST	ABSTAIN	ABSENT
Siquieros/Chana	4	0	0	1
Motion Approved.				

Introduction of Women’s Basketball Team

Arnold Enos, the Jegos Women’s Basketball Head Coach introduced the women basketball team members.

TOCC Charter

The TOCC Charter is unfinished and needs clarification from the HRDC on the next steps. An email was recently received from the HRDC Meeting Staffer who informed that the HRDC committee will meet with the college on November 20, 2017 at 2:30 PM to discuss further.

September 2017 Monthly Financial Statements

Bank of America, Regular Operational Checking Account	\$5,237,404
Bank of America – AIHEC	5,977
Capital Campaign	3,223
Bookstore Cash	1,333
Change Fund	100
Cash and Cash Equivalents in all accounts	<u>5,248,037</u>

Investments follow:

Community Foundation (endowment fund)	343,945
Wells Fargo Securities, Building/Operating Reserve	<u>1,673,954</u>
Investment Total	2,017,899
Other Assets	<u>8,686,886</u>
Total Unrestricted Assets	<u>16,996,778</u>

The 2016 audit process has begun; Auditors were on site last week and the audit is on target to be completed by January 31, 2017. Unaudited figures will be used to create the charts in the annual reports to be presented to District Councils.

Clarifications on budgets:

- The 7 initiatives budget was created from the surplus of funds received from the nation.
- The budgeted amount for employee tuition waivers is to fund the requirement for employees to complete the O’odham history and language courses.
- Consultant fees for the San Carlos Apache College can be billed and paid up to \$3,200 per month based on invoices as part of the agreement.

MOTION: Motion was made by Bernard Siquieros to accept the September 2017 Monthly Financial Report, second by Jonas Robles.

MOTION / SECOND	FOR	AGAINST	ABSTAIN	ABSENT
Siquieros/Robles	4	0	0	1

Motion Approved.

November 2017 Human Resource Report

Separations:

- Shay Lewis, Research Intern*
- Raashaun Ramon, Research Intern*
- Selso Villegas Jr., Security Guard

**Research Interns were interns for David Stone’s project, since the program ended, research interns separated from their positions.*

New Hire:

- Tim Larsen, Assistant Head Coach

Transfer:

- Floyd Segundo, Security Guard

MOTION: Motion was made by Bernard Siquieros to approve the November 2017 Human Resources Report, second by Jonas Robles.

MOTION / SECOND	FOR	AGAINST	ABSTAIN	ABSENT
Siquieros/Robles	4	0	0	1

Motion Approved.

Recruiter/Transition Coordinator Position Reclassification

The Recruiter/Transition Coordinator was a position that organized and planned Recruiter events along with working with students transitioning to 4 year colleges and universities. In the last few months the current Recruiter/Transition Coordinator transferred to the Advisor position. The Recruiter position has a

vast amount of duties that requires more time off campus, being more visible in the communities and will help organize recruiting events with other TOCC programs.

Supervisors have agreed that the transition position belongs in the realm of Advising and recommends the reclassification approval of the Recruiter based on a review of the position’s duties and responsibilities.

MOTION: Motion was made by Anthony Chana to approve the Recruiter/Transition Coordinator Position Reclassification, second by Jonas Robles.				
MOTION / SECOND	FOR	AGAINST	ABSTAIN	ABSENT
Chana/Robles	4	0	0	1
Motion Approved.				

Food Service New Position Requests – Food Service Lead and an Assistant

The TOCC food service program has been well-received. There are two workers providing food service Mondays through Thursdays when classes are in session and they provide breakfast and lunch on those days. Both of the workers are on a contract and are paid on a weekly basis. Because they are not regular employees, they do not receive benefits and they are not subject to the personnel policies of TOCC.

It was proposed to replace the two food service contracts with regular positions to allow the College needed control over the food service program. A request to create two part-time regular employee positions was proposed. After a lengthy discussion, a suggestion from the Board was to create a culinary program that would serve as a business incubator, utilizing students for on the job learning. A suggestion was to look at larger universities and other models involving gardens.

This agenda item was tabled, pending further review of suggestions provided.

Faculty Handbook Changes

The Faculty Handbook was approved in 2015 and some information has changed as it pertains to field trips. The Faculty Handbook states that only full-time faculty and staff who submit their driving records are covered by the College’s insurance and may drive College vehicles. This means that if an adjunct faculty wanted to plan a field trip, they would need to seek a driver.

However adjunct faculty are permitted to drive College (GSA) vehicles provided that their driving records are submitted to the Administrative Services and Finance Department and their names are listed on driver list which is submitted to our insurance carrier. This amendment to the Faculty Handbook will update information making it current to the practices involving driving college vehicles and field trips.

MOTION: Motion was made by Bernard Siquieros to approve the Faculty Handbook Changes as it relates to field trips and driving college vehicles, second by Jonas Robles.				
MOTION / SECOND	FOR	AGAINST	ABSTAIN	ABSENT
Siquieros/Robles	4	0	0	1
Motion Approved.				

Program Reviews: Science, Social Services, Business and Liberal Arts Open Pathways

The TOCC Board typically has not reviewed “program reviews”. Based on the HLC visit in March 2016, a protocol was established that charges the Board with reviewing program reviews that are conducted by the Education Division. The review protocol indicates that the reviews should be presented to the Board of Trustees to assess strengths, needs and viability of TOCC programs of study.

MOTION: Motion was made by Bernard Siquieros to accept the program reviews for Science, Social Science, Business and Liberal Arts Open Pathways programs, second by Anthony Chana.

MOTION / SECOND	FOR	AGAINST	ABSTAIN	ABSENT
Siquieros/Chana	4	0	0	1
Motion Approved.				

REPORTS

Chairperson of the Board – no report

President's Report

- There are approximately 55-58 students registered at San Carlos Apache College.
- The Core Achieving the Dream team hosted the World Café during the October All-Staff which led us through a discussion of the recent ICAT survey results. Five areas were identified as requiring more attention.
- The San Isidro community representatives have not been responsive to our repeated request for a quarterly update to their community by their representatives. The last meeting occurred in June 2017, where TOCC agreed to meet with quarterly; the next meeting should have occurred in September. Current efforts involve a request to update the Schuk Toak District Council in lieu of San Isidro Community.

Human Resources

- The recent Health and Wellness Fair participation was well attended.
- The HR Manager is currently mentoring a previous employee, Camille Martinez-Yaden, a Ph.D. candidate at University of Arizona.

Institutional Effectiveness

- The college was first to submit its Fall interim report for AIMS-AKIS and is currently working towards completion of the final report due in December.

Education

- The Academic Dean participated in a meeting where data regarding the developmental English and Math class analyses were presented. The data showed the number of times students were placed in developmental classes; students took a long time to pass which has an effect on their financial aid availability; many of those students end up dropping out of the college. A recommendation by the Achieving the Dream coaches was to compress the number of developmental classes in Fall 2018 like other colleges who are now using this approach.
- GED classes are underway in Hikiwan with 8 students enrolled.
- Regarding the USDA Rural Development Grant, it was decided that the garage building will be priority to build. The chain link fencing closest to Highway 86 will be removed and material will be used to fence in farm fields.
- The Director of Land Grant for Sustainability attended the Falcon conference where he networked with various programs regarding grant funding. He also learned that the USDA Representative, Tim Grosser will be retiring.

LLC Director

- A concept design of an amphitheater at main campus as a central spot is being drafted. The design will be similar to the one at the museum with a slope to deter water during rainfalls. Ideas include adding a silhouette scene of picking bahidaj, baskets, and or man in maze. The area will include shade for hot summer months. Funding for this project will be from the Transaction Privilege Tax from the state, estimated at \$147,000. The state requires a plan in place to receive funds and allows use for construction purposes.

ADJOURNMENT

Board of Trustees entered into executive session at 11:11 AM to complete the meeting agenda. Adjournment was at 11:45 a.m.