SECTION I: INTRODUCTION

Program Name
Earth Sciences

Academic Term of Comprehensive (Three-Year) Review
Fall 2025

Brief History of the Program
Courses within the Earth Sciences program include geology, Earth Science, environmental science, geography, and geographic information systems (GIS). The program has existed for roughly 65 years. As of 2025, the department has had a total of 3 full-time instructors/department coordinators, consecutively. This longevity of each instructor speaks to the dedication and loyalty to NVC students and program. Dr. Robert Beatie (petroleum geology) began teaching in the department around 1960, Dr. Richard Della Valle (petroleum geology) began teaching in 1989, and Ms. Cari Roughley (igneous/metamorphic petrology) began teaching in 2013. There has been one full-time professor in the department, and 1-3 part-time instructors in addition to the full-time professor at any given time. The courses within the program support Institutional degree and certificate programs as follows: Physical Geology (GE elective; AS-T Natural Science degree), Earth Science (GE elective; AS-T Natural Science degree), Environmental Science (GE elective; AS-T degree), Geography (GE elective; CFS degree), and Geographic Information System GIS (certificate). The courses are taught to both science and non-science majors.

Alignment with Institutional Mission
The Earth Sciences program supports NVC mission by transforming students through rigorous study and applied investigation of Earth's systems, developing both intellectual growth and scientific literacy. The program prepares students for transfer to university and career through foundational courses and hands-on laboratory experiences. Courses incorporate student-centered learning that encourages critical thinking and inquiry. The program promotes equitable access to scientific education and engages students in the application of Earth Sciences to real-world environmental and societal issues. It emphases understanding geologic materials and processes that relate to extracting and managing resources, mitigating hazards, and developing systems critical to supporting thriving communities. This cultivates civic responsibility and strengthens connections between students and their communities.

Program (Sciences & Engineering) - Earth Sciences: Program Review

Taxonomy of Program

Program	Earth Sciences
Degree(s)/Certificate(s)	Environmental Science AS-T Geographic Information Systems Certificate of Achievement
Courses	EART-110 – Earth Science
	ENVS-115 – Introduction to Environmental Science
	GEOG-101 – World Regional Geography
	GEOG-110 – Physical Geography
	GEOG-120 – Introduction to Geographic Information Systems (GIS)
	GEOG-121 – Intermediate Geographic Information Systems (GIS)
	GEOG 130 – Data Acquisition and Management in Geographic Information Systems (GIS)
	GEOG 131 – Remote Sensing
	GEOL-110 – Physical Geology
	GEOL-111 – Physical Geology Laboratory

SECTION II: PROGRAM DATA

A.1 HEADCOUNT & ENROLLMENT

Headcount & Enrollment Data

Earth Sciences	2022-2023	2023-2024	2024-2025	Change over 3-Year Period
Headcount				
Program	**257**	**278**	**312**	**21.4%**
Institution	**6,161**	**6,588**	**7,034**	**14.2%**
Enrollment				
EART-110	70	92	91	30.0%
ENVS-115	21	8	49	133%
GEOG-101	20	43	33	65.0%
GEOG-110	37	30	39	5.4%
GEOG-120	0	9	17	N/A
GEOG-121	0	8	0	N/A
GEOG-130	0	0	0	N/A
GEOG-131	0	0	0	N/A
GEOL-110	113	103	91	-19.5%
GEOL-111	33	31	36	9.1%
Program	**294**	**324**	**356**	**21.1%**
Institution	**23,489**	**25,075**	**27,646**	**17.7%**
Source: SQL Queries for Fall 2025 Program Review				
Green shading denotes increases > 10%.				
Pink shading denotes decreases > 10%.				

Describe the trend in enrollment within the program over the past three years.
Enrollment has increased

Relative Change in Headcount & Enrollment in the Past 3 Years

Summary Comparison	Three-Year Change	
	Headcount	Enrollment
Program	21.4%	21.1%
Institution	14.2%	17.7%

Relative Direction of Program Enrollment Trend
Program trend reflects the trend at the institutional level

Relative Magnitude of Program Enrollment Trend
Change at the program level exceeds the change at the institutional level

Describe the factors that contributed to the recent enrollment trend within the program.
Headcount and enrollment in the program have increased just over 20%, which is higher than the institutional increase in headcount and enrollment, 14.2% and 17.7% respectively. Factors contributing to the increase in the program is the offering of ENVS 115 and GEOG 120, which brought in higher enrollment. There is a decrease in GEOL 110 enrollment and this needs to be closely followed and addressed.

Program (Sciences & Engineering) - Earth Sciences: Program Review

Do the trends in headcount and enrollment suggest that changes are necessary to improve enrollment within the program?
Yes

Describe proposed actions the program will take around headcount and enrollment.
Increasing the enrollment of GEOL 110 can be addressed by further outreach to high schools and community programs engagement.

A.2 AVERAGE SECTION SIZE

Average Section Size Data

Earth Sciences	2022-2023		2023-2024		2024-2025		Three-Year	
	Sections	Average Size	Sections	Average Size	Sections	Average Size	Average Section Size	Trend
EART-110	4	17.5	4	23.0	4	22.8	21.1	30.3%
ENVS-115	1	21.0	1	8.0	3	16.3	15.6	-22.4%
GEOG-101	1	20.0	2	21.5	2	16.5	19.2	-17.5%
GEOG-110	2	18.5	2	15.0	2	19.6	17.7	5.9%
GEOG-120	0	0	1	9.0	1	17.0	13.0	N/A
GEOG-121	0	0	1	8.0	0	0	8.0	N/A
GEOL-110	5	22.6	5	20.6	4	22.8	21.9	0.9%
GEOL-111	2	16.5	2	15.5	2	18.0	16.7	9.1%
Program	**15**	**19.6**	**18**	**18.0**	**18**	**19.8**	**19.1**	**1.0%**
Institution	**1,010**	**23.3**	**1,045**	**24.0**	**1,055**	**26.2**	**24.5**	**12.4%**
Sources: SQL Queries for Fall 2025 Program Review for enrollment data, Enrollment Management Division Reports and Concurrent Courses Reports for course-section data.								
Green shading denotes increases > 10%.								
Pink shading denotes decreases > 10%.								

Describe the trend in average section size within the program over the past three years.
Average section size has decreased

Relative Change in Average Section Size in the Past 3 Years

Summary Comparison	Three-Year	
	Average	Change
Program	19.1	1.0%
Institution	24.5	12.4%

Relative Average Section Size Trend
Institutional average exceeds the program average

Relative Change in Average Section Size
Change at the institutional level exceeds the change at the program level

Describe the factors that contributed to the recent trend in average section size within the program.
The program experienced a 1% growth in average class size. EART 110 shows a 30% growth in class size, ENVS 115 and GEOG 101 show a 22% and 17% decline in average class size. ENVS 115 declined in year two and recovered in year three. GEOG 101 declined in year three. Factors in this decline could be due to "ghost enrollments" which took up the spaces in these two classes. This has been resolved and we hope to see growth in average class size again.

Do the trends suggest that changes are necessary to increase average section size?
No

A.3 FILL RATE & PRODUCTIVITY

Fill Rate Data

Earth Sciences	2022-2023	2023-2024	2024-2025	Three-Year Change	Three-Year Totals
Fill Rate					
Program					
Enrollments	294	324	356	21.1%	974
Capacity	332	416	432	30.1%	1,180
Fill Rate	88.6%	77.9%	82.4%	-6.2%	82.5%
Institution					
Enrollments	23,489	25,075	27,646	17.7%	76,210
Capacity	31,749	32,279	32,984	3.9%	97,012
Fill Rate	74.0%	77.7%	83.8%	9.8%	78.6%
Source: SQL Queries for Fall 2025 Program Review					

Compare program-level fill rate with institution-level fill rate over the past three years.
Program fill rates have consistently exceeded institutional fill rates.

Productivity Data

Earth Sciences	2022-2023	2023-2024	2024-2025	Three-Year Change	Three-Year Totals
Productivity					
Program					
FTES	35.1	41.4	47.0	33.9%	123.5
FTEF	3.4	4.5	4.5	32.4%	12.4
Productivity	10.3	9.2	10.4	1.2%	10.0
Institution					
FTES	3,017.0	3,163.5	3,393.8	12.5%	9,574.3
FTEF	293.8	288.1	294.5	0.2%	876.4
Productivity	10.3	11.0	11.5	12.2%	10.9
Source: SQL Server Reporting Services – Term to Term Enrollment FTES Load Comparison Report (by Credit Course)					

Relative Change in Productivity in the Past 3 Years

Summary Comparison	Three-Year Rate		Three-Year Change	
	Fill Rate	Productivity	Fill Rate	Productivity
Program	82.5%	10.0	-6.2%	1.2%
Institution	78.6%	10.9	9.8%	12.2%

Compare program-level productivity with institution-level productivity over the past three years.
Institutional productivity has consistently exceeded program productivity.

Describe the factors that contributed to recent trends in fill rate and productivity within the program.
Factors that may contribute to the Program trend include: adjustment to moving back from online mode of delivery to in-person and hybrid. The program did not offer a summer class in 2025 (for the first time in nearly 8 years) and this could have made an impact.

Do the trends suggest that changes are necessary to increase fill rate or/and productivity?
No

Program (Sciences & Engineering) - Earth Sciences: Program Review

B.1 RETENTION & SUCCESSFUL COURSE COMPLETION

Retention & Course Completion Data

Summary Comparison	Program	Comparison	Institution
Retention Rate	95.7%	>	***91.8%***
Successful Course Completion Rate	84.2%	>	***73.5%***
Difference	***11.5%***	<	18.3%

Reflect on the summary comparison of retention, successful course completion, and the difference between the two at the program level vs. the institution level. Do the program-level figures suggest that changes are necessary?

No

Describe the proposed actions that the program will take based on the summary course retention and completion data.

Retention and success rate percentages are above institution rates. At this point, no immediate action for change is necessary, but certainly necessary to continue to monitor.

Course-Level Retention & Completion Data

Earth Sciences	Retention Rate			Successful Course Completion Rate			Difference (Retention Minus Successful Course Completion)
Course	Rate	Course vs. Program Rate		Rate	Course vs. Program Rate		
		Higher	Lower		Higher	Lower	
EART-110	97.6%	X		86.9%	X		10.7%
ENVS-115	88.5%		X	70.5%		X	18.0%
GEOG-101	97.9%	X		89.6%	X		8.3%
GEOG-110	99.1%	X		95.3%	X		3.8%
GEOG-120	84.6%		X	57.7%		X	26.9%
GEOG-121	*			*			
GEOL-110	96.1%	--	--	82.0%		X	14.1%
GEOL-111	92.0%		X	84.0%	--	--	8.0%
Program	95.7%			84.2%			***11.5%***
Institution	***91.8%***			***73.5%***			18.3%

Source: SQL Queries for Fall 2025 Program Review

*Indicates that data are suppressed due to low N (< 10).

-- Indicates a value that is within 1% of the program-level rate.

Bold italics denote a statistically significant difference between the program-level rate and the institutional rate. The lower of the two rates is highlighted in ***bold italics***.

Green shading highlights courses with retention and successful course completion rates higher than the corresponding program-level rate and a difference between retention and successful course completion that is smaller than the difference at the program level.

Pink shading highlights courses with retention and successful course completion rates lower than the corresponding program-level rate and a difference between retention and successful course completion that is larger than the difference at the program level.

Reflect on the course-level data provided in the table containing detailed program data. Do the course-level retention rates, successful course completion rates, or the differences between the two suggest that changes are necessary?

Yes

Describe the proposed actions that the program will take based on the course-level retention and completion data.

While the overall program retention and success rates are higher than the Institution, specific courses ENVS 115 and GEOG 120 have not shown retention and success at the level desired. Actions include greater promotion of the courses.

B.2. STUDENT EQUITY

Comparison of Retention and Successful Course Completion Rates Among Demographic Groups

Earth Sciences	Demographic Group	Program	Comparison	Institution
Retention Rate	Ages 25 to 29	91.4%	>	89.7%
	African American/Black	90.0%	≈	89.5%
	Native American	*		86.0%
Successful Course Completion Rate	Ages 19 or Younger	82.9%	>	***71.9%***
	African American/Black	75.0%	>	65.2%
	Latinx/Hispanic	83.3%	>	***70.4%***
	Native American	*		64.3%
	First-Generation	80.0%	>	***67.9%***

Source: SQL Queries for Fall 2025 Program Review

Bold italics denote a statistically significant difference between rates at the program and institutional levels, with the lower of the two rates in ***bold italics***.
*Indicates that are suppressed due to low N (< 10).

Reflect on the comparison of retention and successful course completion rates among demographic groups at the program level vs. the institution level. Identify any areas of concern.
Retention and successful course completion at the program level is much higher than institutional level for all demographic groups. The area of focus for improvement is the successful completion rate for African American students.

Do the program-level figures on course retention and completion suggest that changes are necessary?
Yes

Describe proposed actions the program will take around student equity.
New focus has been placed on student equity and anti-racism within the department over the past 1.5 years. This has included semester and year long learning workshops that included examine course materials and teaching practices to identify barriers that may impact student learning and instructor biases. Actions to take that focus on student equity include continued education for department faculty.

B.3 DELIVERY MODE

Comparison of Retention and Successful Course Completion Rates by Delivery Mode

Earth Sciences			
Retention & Successful Course Completion by Delivery Mode			
	In-Person	Comparison	Online
Retention Rate	90.0%	>	75.0%
Successful Course Completion Rate	80.0%	>	50.0%
	In-Person	Comparison	Hybrid
Retention Rate	96.3%	<	100%
Successful Course Completion Rate	92.6%	>	79.1%
	Online	Comparison	Hybrid
Retention Rate	92.8%	<	97.2%
Successful Course Completion Rate	84.7%	>	76.9%

Source: SQL Queries for Fall 2025 Program Review
This table compares student performance in courses offered through multiple delivery modes within the same academic year.
Bold italics denote a significantly lower rate within that delivery mode.

Program (Sciences & Engineering) - Earth Sciences: Program Review

Courses Included in Analysis by Delivery Mode

Courses Included in Analysis by Delivery Mode	
Comparison	**Course(s) and Academic Year(s)**
In-Person vs. Online	○ ENVS-115 in 2024-2025
In-Person vs. Hybrid	○ ENVS-115 in 2024-2025 ○ GEOG-110 in 2022-2023
Online vs. Hybrid	○ ENVS-115 in 2024-2025 ○ GEOL-110 in 2022-2023 ○ GEOL-110 in 2023-2024

Reflect on the comparison of retention and successful course completion rates by course delivery mode. Identify any areas of concern.
Overall, courses in the Earth Sciences show a higher retention and successful course completion when offered in-person and hybrid.

Do the differences between retention or/and successful course completion among different delivery modes suggest that changes are necessary?
No

Describe proposed actions the program will take around course delivery mode.
No actions to be taken.

C.1 PROGRAM COMPLETION

Program Completion Data

Earth Sciences				Three-Year	
	2022-2023	2023-2024	2024-2025	Change	Total
AS-T Degrees	0	0	1	N/A	1*
Certificates of Achievement	0	0	0	N/A	0
Institutional: AS-T Degrees	111	125	118	6.3%	354
Institutional: Certificates of Achievement (including Local Certificates)	384	344	342	-10.9%	1,070
Source: SQL Queries for Fall 2025 Program Review *Note: Time to completion not reported for program due to low N (< 10)					

Direction of 3-year trend in AS degree conferral
The program trend deviates from the trend at the institutional level.

Magnitude of 3-year trend in AS degree conferral
The change at the institutional level exceeds the change at the program level.

Direction of 3-year trend in certificate conferral
The program trend deviates from the trend at the institutional level.

Magnitude of 3-year trend in certificate conferral
The change at the institutional level exceeds the change at the program level.

Describe the factors that contributed to recent trends in completion within the program.
The AS-T in Environmental Science and GIS certificate are new degrees and there is not enough data to evaluate.

Do the trends suggest that changes are necessary to increase completion (degree/certificate conferral)?
No

Relative Average Time to Completion Data

Earth Sciences	Three-Year				
Award Type	Program Proportion of Awards	Trend		Average Time to Completion (in Years)	
		Program	Institution	Program	Institution
AS-T Degrees	0.3%	N/A	6.3%	*	3.8
Certificates	N/A	N/A	-10.9%	N/A	3.5

Program (Sciences & Engineering) - Earth Sciences: Program Review

Does the time to completion within the program reflect the institutional time to completion?
Yes

Does the program time to completion suggest that changes are necessary to reduce time to completion?
No

C.2 JOB PLACEMENT RATES

C.3 LICENSURE EXAM PASSAGE RATES

SECTION III: CURRICULUM

Courses Table

Subject	Course Number	Date of Last Review & Approval by Curriculum Committee	Reason for Last Review	Has Prerequisite/ Corequisite* *Yes/No* & Date of Last Review	Last Term with Enrollments	In Need of Revision *Indicate Non-Substantive (NS) or Substantive (S)* & Academic Year Anticipated	To Be Archived *(as Obsolete, Outdated, or Irrelevant)* & Academic Year Anticipated	No Change
EART	110	6/12/2015	Mod needed for C-ID Review	No	SP/25	S		
ENVS	115	FA/2021	Course modification to align with C-ID; Changes include course title, TOP Code, catalog description, SLOs, Objectives, Content, method of evaluation update, and textbook update	No	SP/25	S		
GEOG	101	2015	Reactivating course to be part of new ADT in Elementary Teacher Education	Advisory for Engl-90 / 2015	SP/25	NS 2026		
GEOG	110	2019	Discipline expert change/addition; Text update	No	SP/25	NS 2026		
GEOG	120	2023	To develop new GIS courses and develop a 12 unit Certificate of Achievement program to meet the skills needed in entry-level and advanced workforce as indicated by current Labor Market Data	No	FA/24			X
GEOG	121	2023	Same as above	Completion of GEOG-120 with a minimum grade of C (2023)	FA/24			X

GEOG	130	2023	Same as above	Completion of GEOG-121 with a minimum grade of C (2023)	SP/25			X
GEOG	131	2023	Same as above	Completion of GEOG-120 with a minimum grade of C and advisory for GEOG-121 (2023)	SP/25			X
GEOL	110	2019	Add TOP code and update example text	No	SP/25	NS 2026		
GEOL	111	2020	Add GEOL 110 as a prerequisite, edit SLOs, update Methods of Evaluation, update Assignments, update textbook	Previous completion of/or current enrollment in GEOL-110 (2020)	SP/25			X

Degrees & Certificates Table

Degree or Certificate & Title	**Implementation Date**	**Date of Last Review**	**Reason for Last Review**	**Has Documentation** ***Yes/No***	**In Need of Revision+** ***and/or Missing Documentation*** **& Academic Year Anticipated**	**To Be Archived*** ***(as Obsolete, Outdated, or Irrelevant)*** **& Academic Year Anticipated**	**No Change**
Environmental Science AS-T	1/17/2024	In Process	Common Course Numbering required update	No			X
Geographic Information Systems Certificate of Achievement	1/17/2024	New COA in 2023 and updated the same year	Updating title to remove degree type	Yes			X

Describe the alignment between the Program Map(s) and the NVC Catalog.
Program faculty did not complete the review of all program map(s) for consistency with the information in the NVC Catalog.

Describe the factors that contributed to the consistency/discrepancy identified in the two sources.
Competing priorities impacted the timeline for task completion.

Do the findings from the review of information indicate that changes are necessary to ensure consistency across sources?
Yes

Describe the proposed actions the program will take around alignment between Program Map(s) & Catalog.
The Program Coordinator will review program mapping to assure alignment with current catalog.

D. ALIGNMENT BETWEEN COURSE SCHEDULING & CATALOG

Describe the alignment between recent course offerings and program requirements.
Program faculty did not complete the review of recent course offerings to ensure that students have been given opportunity to complete requirements within the period of time reported in the Catalog.

Describe the factors that contributed to ensuring that courses are offered according to schedule (or not offering them according to schedule).
Factors not identified. Program Coordinator actions are to review the courses to align with the course catalog.

Do the findings from the review of course offerings indicate that changes are necessary to ensure that students can complete program requirements within the period of time reported in the Catalog?
Yes

Describe the proposed actions the program will take on Course Scheduling & Catalog alignment.
Program Coordinator actions are to review the courses to align with the course catalog.

SECTION IV: LEARNING OUTCOMES ASSESSMENT

LEARNING OUTCOMES STATEMENTS

Program Learning Outcomes Statements from Current Catalog

Program/ Degree/ Certificate	Learning Outcomes Statement(s) as Presented in Current NVC Catalog
Environmental Science AS-T	1. Apply the principles of physical sciences, natural sciences, and technology with research to address current environmental issues through the process of Scientific Method. 2. Analyze the interactivity between physical, natural, and social systems and the impact on environmental policies, sustainable development, environmental justice, and racial justice. 3. Demonstrate proficiency in research, analytical, and communication skills necessary to present critical analysis of the human-environment relationship and responses to environmental challenges.
Geographic Information Systems Certificate of Achievement	1. Design, compile, and develop a spatial database and a set of analytical tools into a system appropriate to solve a geospatial problem. 2. Understand how to use Geographic Information Systems to make maps that communicate, perform analysis, and share information related to complex problems, and develop a practical project plan for addressing those problems. 3. Effectively communicate and present project results in oral, written, and graphic forms.

A. ALIGNMENT OF OUTCOMES STATEMENTS ACROSS A VARIETY OF SOURCES

Program faculty have reviewed all program-level outcomes statements (including those associated with each degree or/and certificate offered) recorded in these .
Nuventive

Were any discrepancies between outcomes statements across the locations identified?
No

B. STATUS OF LEARNING OUTCOMES ASSESSMENT

B.1 Course Level

Earth Science	Number of Courses with Outcomes Assessed		Proportion of Courses with Outcomes Assessed	
Number of Courses	Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
7	4	5	57.1%	71.4%

B.2 Program/Degree/Certificate Level

Degree/ Certificate	Number of Outcomes*	Number of Outcomes Assessed		Proportion of Outcomes Assessed	
		Over Last 4 Years	Over Last 6 Years	Over Last 4 Years	Over Last 6 Years
Environmental Science AS-T	3	0	0	0%	0%
Geographic Information Systems Certificate of Achievement	3	0	0	0%	0%

Are any changes necessary to ensure regular, ongoing assessment of student learning outcomes?
Yes

Describe the proposed actions the program will take around status of learning outcomes assessment.
Program Coordinator will implement the degree/certificate outcomes assessment into the course outcomes assessment schedule.

C. FINDINGS FROM LEARNING OUTCOMES ASSESSMENT

Summary of recent assessment findings
Learning outcomes assessment at the course and program level were nearly or at 100% at last program review, but have dropped in the last three years. The Program Coordinator has now re-implemented the schedule previously used for assessment and will bring the completion rate back to 100% for next program review.

Are any changes necessary to ensure follow-up on outcomes assessment findings or/and completion of action plans recorded in Nuventive?
Yes

Describe the proposed actions the program will take around learning outcomes assessment.
The Program Coordinator has now re-implemented the schedule previously used for assessment and will bring the completion rate back to 100% for next program review.

SECTION V: LAST THREE-YEAR PROGRAM-LEVEL PLAN

Components of the Last Three-Year Program-Level Plan

Status of Program-Level Plan from Last Program Review		
Components of Program-Level Plan from Last Program Review	**Description of Implementation to Date**	**Description of Status**
Environmental Science AS-T		
Geology AS-T		
GIS Certificate		
DEI and Intersectional pedagogy and curriculum into classes		

Will any components of the last program plan be carried over into the plan that results from the current review process?
Yes

SECTION VI. PROGRAM PLAN (FOR THE FUTURE)

Program Plan

Program Plan for the Future					
Program	**Program-Level Initiative**	**Initiative/ Component #**	**Alignment with EMP/Other Plans**	**Anticipated Year of Implementation**	**Anticipated Outcome of Initiative**
		1			
		2			
		. . .			

SECTION VII. RESOURCE NEEDS (FOR THE FUTURE)

Resource Needs

Resources Needed to Implement Program Plan		
Initiative/ Component #	**Resource Type**	**Resource Description**
1		
2		
. . .		

SECTION VIII. OVERVIEW

A.1 Assessment of State of the Program
Stability

A.2 Rationale for the State of the Program Selected
Program review data shows that enrollment has increased and exceeded the institutional trend level.

B.1 Major Findings: STRENGTHS
Program fill rates have increased and exceeded institutional fill rates.
Retention and success rate percentages are above institution rates.
Headcount and enrollment in the program increase has exceeded institutional increase.

B.2 Major Findings: AREAS FOR IMPROVEMENT
Average section size has decreased slightly and needs to be monitored and classes need to be promoted.
While the overall program retention and success rates are higher than the Institution, specific courses ENVS 115 and GEOG 120 have not shown retention and success at the level desired.

C. Describe the great work the program has been doing the past three years, including effective and innovative practices to improve the student experience, success, learning, and achievement.
Accomplished New Objectives/Goal from 2022 Program Review:
Moved ENVS AS-T degree through curriculum
Archived GEOL 199

Developed field trips guest lectures and volunteer experience in the department fields.
Improve student equity by increasing representation of accomplished people of color currently in the geosciences.

Additional work beyond the last Program Review:
Implemented culturally responsive pedagogy into the program and courses.
Revised homework and lab assignments to emphasize scientific reasoning and evaluation of data.
Utilized Mt Veeder campus for field work and internship research.
Worked with NapaRCD and Napa Land Trust to support field learning, habitat monitoring and restoration, interpretive outreach projects.
Participated in Earth Day Napa for the past two consecutive years, highlighting the courses and degrees within the program.
Offered new GIS courses that introduce students to industry-standard geospatial tools, improving technical skills and expanding career pathways in geospatial analysis.

D. New Objectives/Goals
Focus on increasing enrollment in the existing courses and offering more field opportunities to accompany the coursework to prepare students for transfer.
Re-writing textbooks, lab manuals, and field trips.
Focus on developing students' scientific information literacy; to continue having them evaluate data sources, identify credible science, and critically interpret geoscience information.

E. List of Individuals Who Contributed to the Report/Participated in Process
Cari Roughley

ADMINISTRATIVE FEEDBACK

Supervising Administrator
Christopher Farmer

Strengths and successes of the program, as evidenced by analysis of data, outcomes assessment, and curriculum.
The Earth Sciences Program is stable and shows a positive upward trajectory. The program has demonstrated increased enrollment, outpacing institutional gains, with fill rates that consistently exceed institutional levels. Retention and success rates are also above institutional averages.

The program review highlights strong instructional practices, including expanded field experiences, partnerships with organizations like NapaRCD and the Land Trust, new GIS offerings aligned with workforce expectations, and increased community engagement through events such as Earth Day Napa. These efforts clearly enhance student connection to real-world geoscience applications and promote pathway visibility.

Faculty commitment to culturally responsive pedagogy and equity-focused professional learning strengthens the program’s responsiveness to diverse learners.

Areas of concern, if any
There are two primary areas identified for ongoing monitoring:

• Average section size has declined slightly in some courses, despite overall enrollment gains.
• Retention and success in ENVS 115 and GEOG 120 are lower than desired and require targeted support and/or promotion.

Additionally, while equity performance exceeds institutional levels overall, successful completion rates for African American students should continue to be closely reviewed to guard against disproportionate impact.

Program mapping, catalog alignment, and outcomes assessment schedules also require renewed attention to ensure consistent completion moving forward.

Program (Sciences & Engineering) - Earth Sciences: Program Review

Recommendations for improvement

The following actions align well with the program's analysis and institutional priorities:

• Continue outreach efforts to increase enrollment in GEOL 110 and build awareness of new degree and certificate pathways
• Targeted strategies to support success in ENVS 115 and GEOG 120
• Complete program mapping alignment and scheduling review to ensure sustainable pathways for transfer and certificate completion
• Maintain strong progress on learning outcomes assessment cycles

These recommendations rely on existing structures and are operationally feasible.

Additional information regarding resources

Earth Sciences operates within the same aging science facilities that place limits on flexibility and modernization of lab-based and field-support technology. While a new building is not currently planned, we will continue advocating for incremental improvements and capital planning aligned with long-term STEM needs.

Short-term needs are well-defined within this review and include:
• Updated technology in lecture and lab settings
• Continued professional learning for faculty (particularly in applied GIS and fieldwork methodology)
• Support for outreach and field-based learning opportunities

These resource priorities position the program to sustain and expand student interest and success.