GEOMATICS DEPARTMENT
SURVEY OPTION
Oregon Institute of Technology
NWCCU Assessment Report
2022-2023 Academic Year

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1 Program Introduction

1.1 Program History

Geomatics education has been offered virtually since the inception of the Oregon Institute of Technology, with an associate degree in Surveying initiated in 1951. The program was accredited by the Engineer's Council on Professional Development (ECPD) in 1953. ECPD is now recognized as ABET. A baccalaureate Surveying Technology degree was offered in 1966 and accredited by TAC-ABET in 1970. The program was one of the first two Bachelor of Science surveying programs nationwide to receive RAC-ABET accreditation in 1984. The geomatics program has enjoyed 70 years of continuous accreditation under ABET or its predecessor, ECPD. Oregon Tech can be proud of having the oldest BS Geomatics program in the nation. The degree title of the program was officially changed from Surveying to Geomatics in 2001, reflecting a global trend recognizing the broadening of the profession and the impact of a revolution in advanced technology. Since 2007, the department has offered the BS Surveying option (former BS Geomatics degree) and the BS GIS option on the Klamath Falls campus.

1.2 Enrollment Trends (Geomatics - Surveying Option Students)

Table 1-1 Geomatics department enrollment trends

Fall Terms	Year (2018-19)	Year (2019-20)	Year (2020-21)	Year (2021-22)	Year (2022-23)
Full-time Students	34	38	21	29	35
Surveying Minors Awarded	0	0	1	1	3

Reported values represent enrollment during the fourth week of the fall quarter as recorded by Oregon Tech Institutional Research.

1.3 Recent Number of Graduates

Table 1.2 shows the number of geomatics degrees (Survey Option) awarded over the last five years.

Table 1-2 Geomatics - Survey Option degrees awarded

Fall Terms	Year (2018-19)	Year (2019-20)	Year (2020-21)	Year (2021-22)	Year (2022-23)
The number of degrees awarded	6	13	9	2	6

Reported values represent graduations as recorded by Oregon Tech Institutional Research for the Geomatics-Survey Option.

1.4 Employment Rates and Salaries

Graduates in 2018 reported an initial starting salary range of $42,000 to $64,000. 67% of students indicated they would receive a signing bonus, and 33% indicated they would receive other guaranteed compensation. However, it did not indicate the value of these bonuses.

2 Program Summary

2.1 Geomatics Department Mission, Objectives, and Program Student Learning Outcomes (PSLOs)

On June 12, 2024, the Geomatics Department faculty met and reviewed the department mission, program educational objectives (PEOs) and Program Student Learning Objectives (PSLOs) listed below. Faculty affirmed that the department mission, PEOs, and PSLOs still meet the goals of the program.

2.1.1 Department Mission

The mission of the Geomatics Department is to provide students with fundamental knowledge and skills in the geomatics discipline. The Surveying Option prepares students to pass the Fundamentals of Surveying (FS) examination and pursue licensure as a registered Professional Land Surveyor (PLS). The GIS Option prepares students to become certified GIS Professionals. All students learn the professional responsibility of protecting the health, safety and welfare of the public, and become aware of global and cultural issues.

2.1.2 Program Educational Objectives

Program educational objectives are statements that describe the expected accomplishments of graduates during the first few years after graduation, usually 3-5 years. These objectives are consistent with the mission of the program and the institution**.**

Graduates of the Oregon Tech Geomatics Options will:

1. Acquire the ability to obtain professional licensure and/or certifications in the geospatial industry.
2. Advance in the geospatial industry during their career by becoming involved in local, state, national, or international professional organizations.
3. Obtain industry positions requiring increased responsibility.
4. Assume responsibility for lifelong learning in professional and personal development.
5. Demonstrate readiness for graduate education and/or advanced technical education.

2.1.3 Program Student Learning Outcomes (PSLO)

(1) An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.
(2) An ability to formulate or design a system, process, procedure or program to meet desired needs.
(3) An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.
(4) An ability to communicate effectively with a range of audiences.
(5) An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.
(6) An ability to function effectively in teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.

Note: The expected learning outcomes for the survey option are based on ABET/ASAC accreditation criteria.

2.2 Survey Option Student Learning Opportunities

Geomatics student professional learning opportunities include:

1. Geomatics Student Club community service activities. Each year, students in the Geomatics Club are encouraged to take on survey/GIS-related projects that benefit the community. These projects provide the students with exposure to real-world projects, negotiations, and fulfillment of a specific scope of work, as well as the opportunity to work with other disciplines.
2. The National Society of Professional Surveyors (NSPS) National Geomatics Student Competition. If a critical mass of students are committed to participating, a fundraising drive is initiated to supplement funding provided by the department and professional organizations. In 2020, two Geomatics students won the NSPS Student Project of the Year, which involved a surveying/GIS application.
3. Professional Land Surveyors of Oregon (PLSO) annual conference. Students volunteer as runners to assist with conference details, attend technical paper presentations, and staff an Oregon Tech Geomatics department booth.
4. GME 468 Geomatics Practicum. Students are responsible for completing several community service projects for city, county, state, and federal agencies.
5. Industry speakers are invited to present at the PLSO Student Chapter meetings.
6. Students are encouraged to participate in professional organizations, such as becoming a student member of PLSO.

3 Summary of Six-Year Assessment Cycle

Table 3.1 shows the six-year PSLO/ISLO assessment cycle for the geomatics survey option. It indicates the PSLO/ISLO, the academic year, and the course where the learning outcome will be assessed (ISLO: Oregon Tech's Institutional Student Learning Outcomes).

Table 3-1 Six-Year Assessment Cycle

PSLO	ISLO	AY 17/18	AY 18/19	AY 19/20	AY 20/21	AY 21/22	AY 22/23
(1) An ability to identify, formulate, and solve broadly defined technical or scientific problems by applying knowledge of mathematics and science and/or technical topics to areas relevant to the discipline.	6		GME175 GIS306			GME175 GIS306	
(2) An ability to formulate or design a system, process, procedure or program to meet desired needs.	4		GIS306 GME468			GIS306 GME468	
(3) An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.	2			GME241 GIS316			GME241 GIS316

(4) An ability to communicate effectively with a range of audiences.	1			GME161 GME468			GIS205 GME468
(5) An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.	3	GME162 GME454/455			GME162 GME454/455		
(6) An ability to function effectively on teams that establish goals, plan tasks, meet deadlines, and analyze risk and uncertainty.	5	GIS205 GME468			GIS205 GME468		
Additional PSLO Assessments							
Review FS Exam Results		X	X	X	X	X	X
Review IAB comments		X	X	X	X	X	X
Alumni Survey				X			X
Employer Survey		X			X		

NOTE: The IAC did not meet during the pandemic years 2019 through 2022 and is being reconstituted as many members retired from their employment and did not continue to serve in the IAC. Alumni and Employer surveys are typically conducted at the Annual PLSO Conference, which was suspended and disrupted during the pandemic.

4 Summary of Current Academic Year Assessment Activities

Table 4.1 summarizes the Program Student Learning Outcomes (PSLOs) assessed during the 2022/2023 academic year. The matrix also indicates what course the outcome will be assessed in, the quarter of assessment, the instructor who will perform the assessment, and the method that will be utilized.

Table 4-1 – PSLOs evaluated during the 2022/2023 assessment cycle.

PSLO	Course	Faculty	Term	Method
(4) An ability to communicate effectively with a range of audiences.	GIS 205	Lee	Spring 2023	Dashboard Poster
	GME 468	Walker	Spring 2023	Project assessment
(3) An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.	GME 241	Mollett	Fall 2022	Examination questions Assignments
	GIS 316	Lee	Winter 2023	Laboratory Exercises

4.1 Summaries of individual assessment activities

4.1.1 PSLO (4) An ability to communicate effectively with a range of audiences.

Performance Criteria:

GIS 205 and GME 468 students must demonstrate the ability to communicate effectively with a range of audiences.

Students are rated based on the following scores:

1) Below 50% of the score
2) Above 50% of the score
3) Above 60% of the score
4) Above 70% of the score
5) Above 80% of the score

4.1.1.1 GME 161

Table 4-2 Rubric For
PSLO 4 "An ability to communicate effectively with a range of audiences." GIS 205 – Mobil and Web GIS

Performance Criteria	Below 50% of the score (1)	Above 50% of the score (2)	Above 60% of the score (3)	Above 70% of the score (4)	Above 80% of the score (5)
Ability to communicate - surveying field notes.	Little or no ability to communicate	Some, but limited ability to communicate	Some limitations on the ability to communicate	Ability to communicate effectively	Excellent ability to communicate effectively

Departmentally Expected Score:

For PSLO (4), the Geomatics Department expects 70% of students to score a 4 or 5 in all categories.

Table 4-3 GIS 205: Assessment results

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Dashboard Poster	Dashboard Poster	1 to 5 scale	70%	81%

Table 4-4 GIS 205: The number of students assessed. See Appendix A

Performance Criteria	Below 50% of the score (1)	Above 50% of the score (2)	Above 60% of the score (3)	Above 70% of the score (4)	Above 80% of the score (5)	Total
Number of students assessed	1	1	0	3	6	11

Actions to be taken.

As the score exceeded the departmentally established minimum of 70%, no actions will be taken for PSLO (4) at this time.

4.1.1.2 GME 468

Table 4-5 Rubric For
PSLO 4 An ability to communicate effectively with a range of audiences." GME 468- Geomatics Senior Practicum

Performance Criteria	**Below 50% of the score (1)**	**Above 50% of the score (2)**	**Above 60% of the score (3)**	**Above 70% of the score (4)**	**Above 80% of the score (5)**
An ability to understand ethical and professional responsibilities and the impact of technical and/or scientific solutions in global, economic, environmental, and societal contexts.	Little or no ability to understand the impact of technical and/or scientific solutions	Some, but limited ability to understand the impact of technical and/or scientific solutions	Some limitations on the ability to understand the impact of technical and/or scientific solutions	Ability to understand the impact of technical and/or scientific solutions	Excellent ability to understand the impact of technical and/or scientific solutions

Departmentally Expected Score:

For PSLO (4), the Geomatics Department expects 70% of students to score a 4 or 5 in all categories.

Table 4-6 GME 468: Assessment results

Performance Criteria	**Assessment Method**	**Measurement Scale**	**Minimum Acceptable Performance**	**Results**
Scope of Work	Paper	1 to 5 scale	70%	100%
Final Project Binder	Research Paper	1 to 5 scale	70%	100%

Table 4-7 GME 468: The number of students assessed. See Appendix B

Performance Criteria/ Number of students assessed	**Below 50% of the score (1)**	**Above 50% of the score (2)**	**Above 60% of the score (3)**	**Above 70% of the score (4)**	**Above 80% of the score (5)**	**Total**
Scope of Work	0	0	0	0	6	6
Final Project Binder	0	0	0	0	6	6

Actions to be taken:

As the scores exceeded the departmentally established minimum of 70%, no actions will be taken for PSLO (4) at this time.

4.1.2 PSLO (3): An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions.

Performance Criteria:

GME 241 Students must analyze land records and field surveying data to support a legal decision regarding land boundaries.

Students are rated based on the following scores:

1) Below 50% of the score
2) Above 50% of the score
3) Above 60% of the score
4) Above 70% of the score
5) Above 80% of the score

4.1.2.1 GME 241

Table 4-8Rubric For
PLSO (3): An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions. GME 241 – Legal Aspects of Land Survey I

Performance Criteria	**Below 50% of the score (1)**	**Above 50% of the score (2)**	**Above 60% of the score (3)**	**Above 70% of the score (4)**	**Above 80% of the score (5)**
Ability to analyze field data and support legal decision	Little or no ability to effectively analyze data	Some, but limited ability to effectively analyze data	Some limitations on the ability to effectively analyze data	Ability to effectively analyze data	Excellent ability to effectively analyze data

Departmentally Expected Score:

For PSLO (3), the Geomatics Department expects 70% of students to score a 4 or 5 in all categories.

Table 4-9 GME 241: Assessment results

Performance Criteria	**Assessment Method**	**Measurement Scale**	**Minimum Acceptable Performance**	**Results**
Report Score 1	HW4 - Research	1 to 5 scale	70%	76%
Report Score 2	HW5 - Research	1 to 5 scale	70%	88%

Table 4-10 GIS 241: The number of students assessed. Appendix C

Performance Criteria / Number of Students Assessed	**Below 50% of the score (1)**	**Above 50% of the score (2)**	**Above 60% of the score (3)**	**Above 70% of the score (4)**	**Above 80% of the score (5)**	**Total**

Report Score 1	3	1	0	3	10	17
Report Score 2	1	1	0	3	12	17

Actions to be taken:

The final project proposal did not meet the departmental-established minimum of 70%, but the final presentation exceeded that. Consequently, we recommend revising the proposal.

4.1.2.2 GIS 316

Performance Criteria:

In GIS, as in most real-world situations, we are faced with numerous constraints, contradictions, and uncertainties. What data do we need? Are they available? If we obtain the data in that form now, will it compromise what we (or someone else) want to do later? Should we use a different data set? Should we wait until better data are available? Can we afford the data? Are they worth the cost? Therefore, In GIS 316, students are able to develop their own thoughts on various issues and problems by defining relevant indicators and data needs.

The key to the process, however, is to translate the problem to be tackled into a clearly defined set of data needs. This, in itself, requires an understanding not only of GIS (and how the analysis might ultimately be carried out) but also of the system to be studied.

Students needed to choose three issues out of tens: 1) level of provision of social services, 2) access to mass transit, 3) adult employment, 4) access to open space, 5) housing stress, 6) food security, 7) access to freshwater storage, 8) level of law enforcement coverage, 9) emergency response preparedness to seasonal wildfires or mudslides, and 10) emergency response preparedness to a volcano eruption. Students needed to develop valid indicators and determine datasets for each issue.

Students must demonstrate the following:

1. Understanding the problem of concerns
2. Defining relevant indicators
3. Understanding how to analyze, interpret, and visualize data and draw conclusions.

Students are rated based on the following scores:

1) Below 50% of the score
2) Above 50% of the score
3) Above 60% of the score
4) Above 70% of the score
5) Above 80% of the score

Table 4-11 Rubric For
PLSO (3) "An ability to develop and conduct experiments or test hypotheses, analyze and interpret data and use scientific judgment to draw conclusions." GIS 316 – Geospatial Vector Analysis I.

Performance Criteria	Below 50% of the score (1)	Above 50% of the score (2)	Above 60% of the score (3)	Above 70% of the score (4)	Above 80% of the score (5)
Understanding the problem of concerns	No evidence of understanding the problem of concerns	Some, but limited understanding of the problem of concerns shown	Some understanding of the problem of concerns	Clear evidence of understanding the problem of concerns	Suggestions to solve the problems
Defining relevant indicators	No evidence of understanding the concept of indicators	Some, but limited understanding of the concept of indicators	Some understanding of the concept of indicators	Clear evidence of understanding of the concept of indicators	Clear definitions of indicators with good examples.
Understanding how to analyze, interpret, and visualize data and draw conclusions.	No evidence of understanding how to analyze, interpret, and visualize data and draw conclusions	Some, but limited understanding how to analyze, interpret, and visualize data and draw conclusions	Some understanding how to analyze, interpret, and visualize data and draw conclusions	Clear evidence of understanding how to analyze, interpret, and visualize data and draw conclusions	Providing the specific units how to analyze, interpret, and visualize data and draw conclusions

Departmentally Expected Score:

For PSLO (3), the Geomatics Department expects 70% of students to score a 4 or 5 in all categories.

Table 4-12 GIS 306: Assessment results

Performance Criteria	Assessment Method	Measurement Scale	Minimum Acceptable Performance	Results
Understanding the problem of concerns	Lab6: MAUP	1 to 5 scale	70%	69%
Defining relevant indicators	Lab8: Indicators	1 to 5 scale	70%	92
Understanding how to analyze, interpret, and visualize data and draw conclusions.	Poster	1 to 5 scale	70%	92%

Table 4-13 GIS 316: The number of students assessed. See Appendix D

Performance Criteria / Number of Students Assessed	Below 50% of the score (1)	Above 50% of the score (2)	Above 60% of the score (3)	Above 70% of the score (4)	Above 80% of the score (5)	Total
Understanding the problem of concerns	4	0	0	0	9	13
Defining relevant indicators	1	0	0	0	12	13

Understanding how to analyze, interpret, and visualize data and draw conclusions.	1	0	0	0	12	13

Actions to be taken:

The score for understanding the problem of concern is 69%. Even though the score is close to 70%, the instructor will encourage students to tackle the assignment. The other two categories exceeded the departmentally established minimum of 70% for PLSO (3) at this time.

5 Evidence of Student Learning

5.1 Summary of Department Discussions on Assessment Activities

September 21, 2023 – Geomatics Department Faculty Meeting (Convocation)

The department faculty met and discussed the following items with respect to assessment:

- No changes were deemed necessary for the department's mission statement, Program Learning Objectives (PLSOs), or Student Learning Objectives.
- Changes made to the PLSOs during the 2018/19 academic year to align with the new ABET 1-6 student outcomes were retained so that the six-year cycle would be in sync with the new PSLOs.
- Geomatics faculty are very happy with the 100% pass rate on the NCEES FS exam in recent years. Faculty will continue to incorporate discussions of FS exam topics into relevant courses and support students in forming study groups to prepare for the exam. Faculty will also encourage students to wait until spring quarter of their senior year in order to ensure that they have had course work on all of the topics covered on the FS exam.

5.2 Summary of Faculty Decisions on Program Improvements

The following is an area identified during this assessment cycle that needs additional monitoring.

- While students generally meet all the departmentally required minimums, the scores in communication are generally lower than desired, and opportunities for improvement will be discussed. "Closing the Loop" – Changes Resulting from Assessment

The lead surveying faculty member resigned in the spring of 2021. This position remains unfilled, with multiple remote adjuncts hired to fill in during the 2022-23 academic year. The lead GIS faculty member resigned in the spring of 2022, and this position was successfully filled in the fall of 2023 with a tenure-track assistant professor; however, that individual was given no administrative duties their first year so they could focus their efforts on effective instruction. This placed an unrealistic burden on the long-serving department chair to operate the entire department and programs. The goal was to preserve program quality as best as possible until the department is fully staffed again. Fortunately, assessment results did not find any significant program shortcomings, and no changes to programs or curriculum will be made.

6 “Closing the Loop” – Changes Resulting from Assessment

The following is a summary of areas identified during the last assessment cycle as areas that need additional monitoring or improvement:

No significant shortcomings were identified, and with the department currently understaffed no major curriculum changes will be undertaken.

Senior Exit Survey – data from the Senior Exit Survey for 2022 are shown in Appendix E.

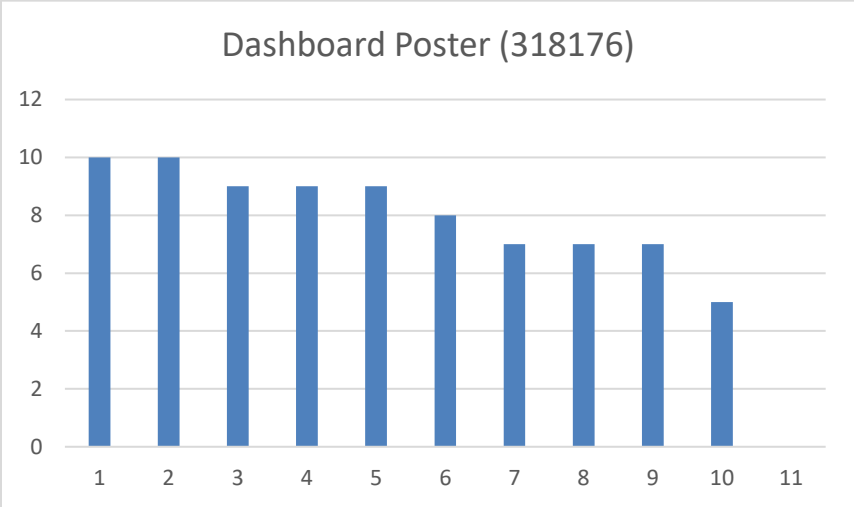
Casual conversations during the year indicate that student progress toward the program and student learning objectives were adequate to excellent for the courses under assessment for the 2022-2023 academic year.

7 NCEES Fundamentals of Surveying Exam Results –

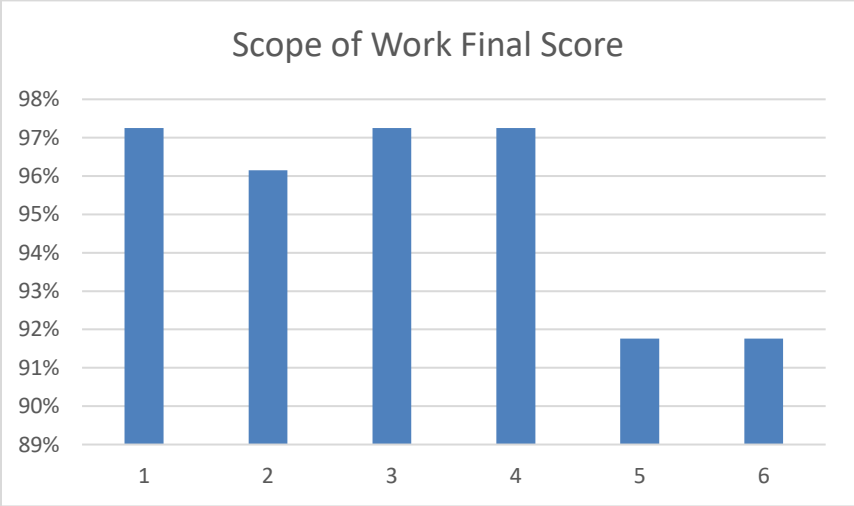
The department expectation for students taking the NCEES Fundamentals of Surveying Exam is 90%. The data available from NCESS for this assessment cycle shows students' passing percentages are 67% (Fall 2022), 50% (Spring 2022), and 100% (Spring 2023). Students are required to take the FS exam as a graduation requirement and are encouraged to form study groups during the winter term and take the exam during the spring quarter of their senior year.

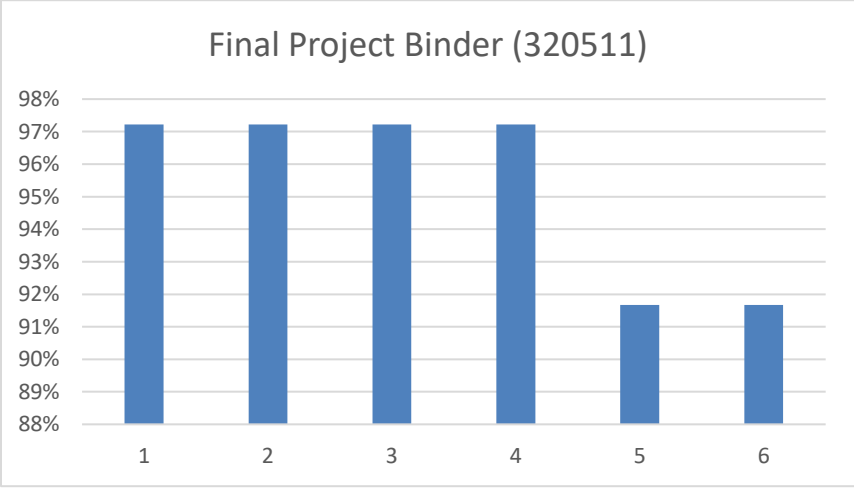
8 Appendices

8.1 Appendix A: GIS 205 Dashboard Poster

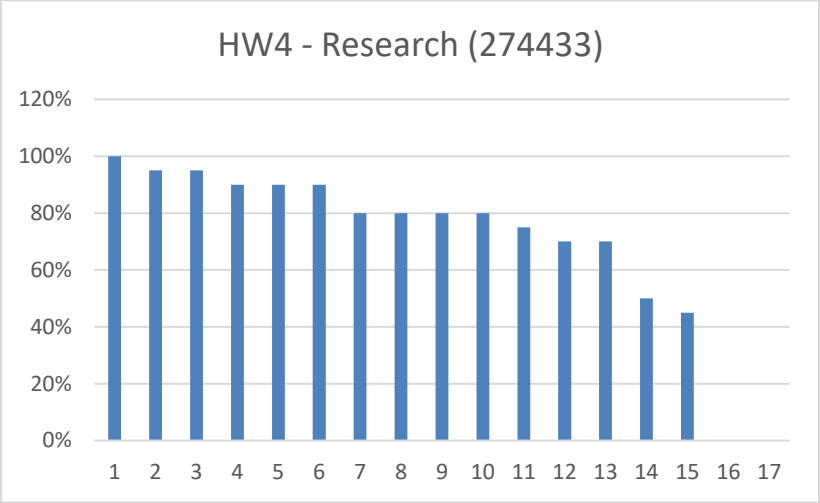


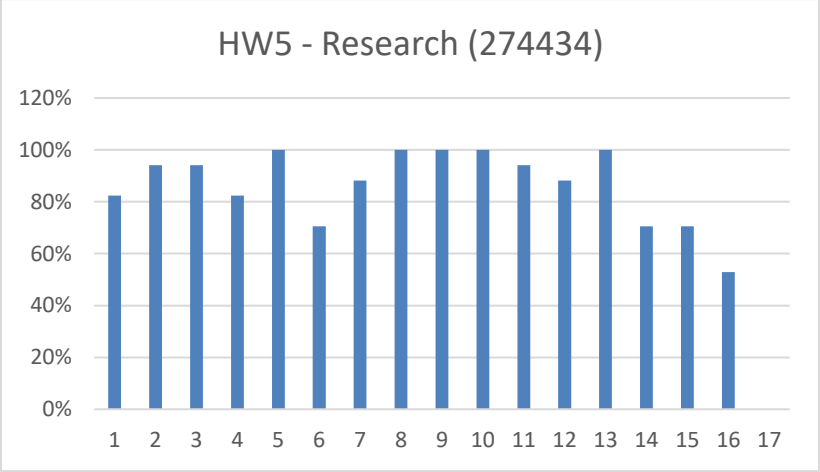
8.2 Appendix B: GME 468 Scope of Work Final Score



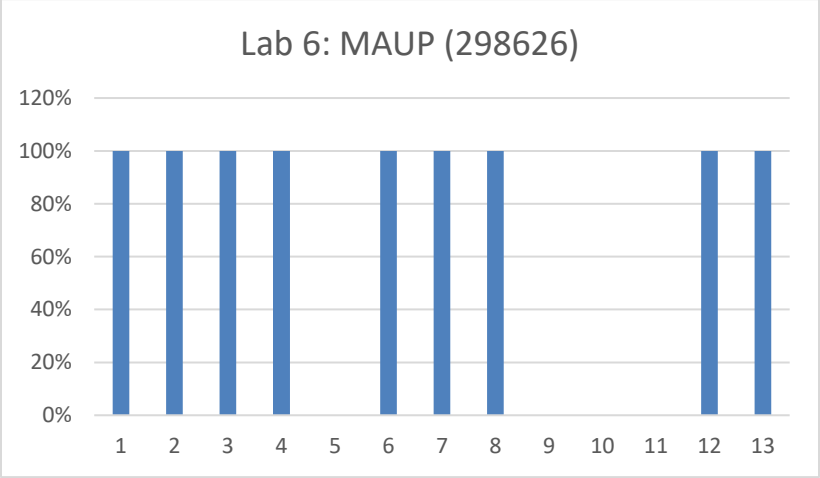


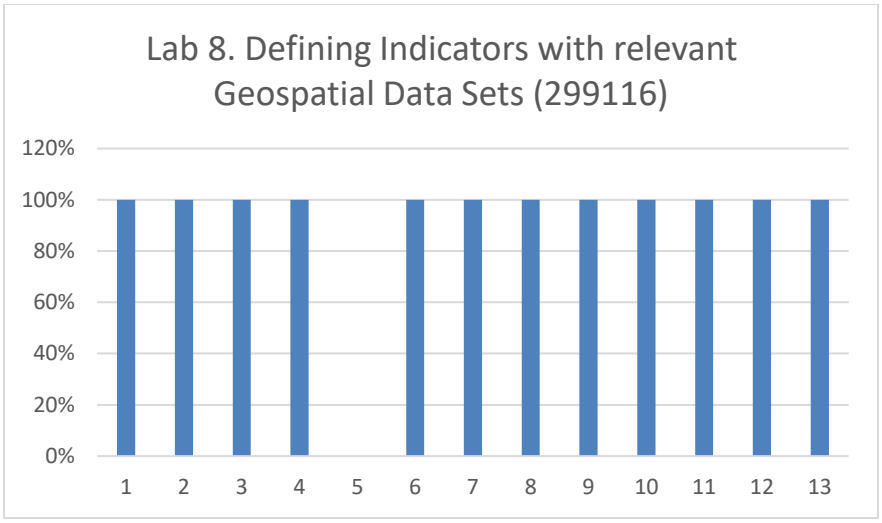
8.3 Appendix C: GME 241 HWs 4 & 5 Research

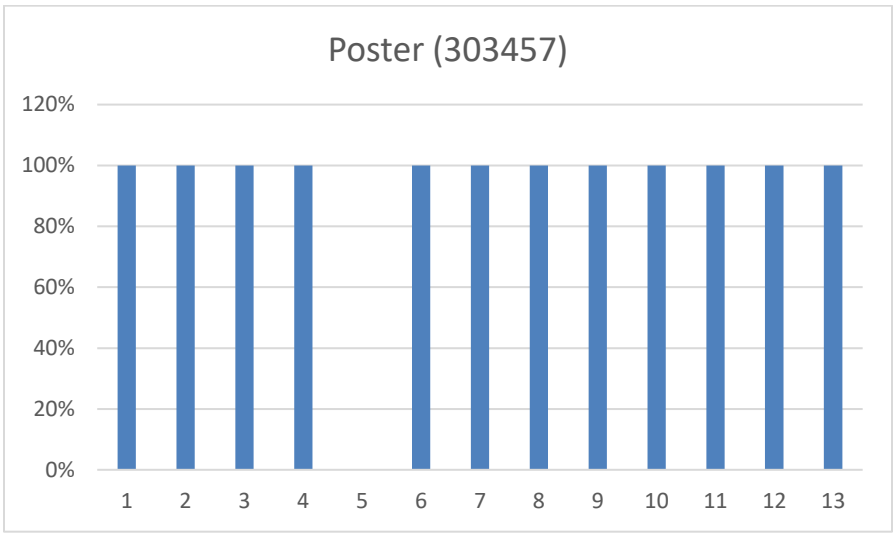




8.4 Appendix D: GIS 316 Labs and Project Poster







8.5 Appendix E: Geomatics – Senior Exit Survey Results 2022-23

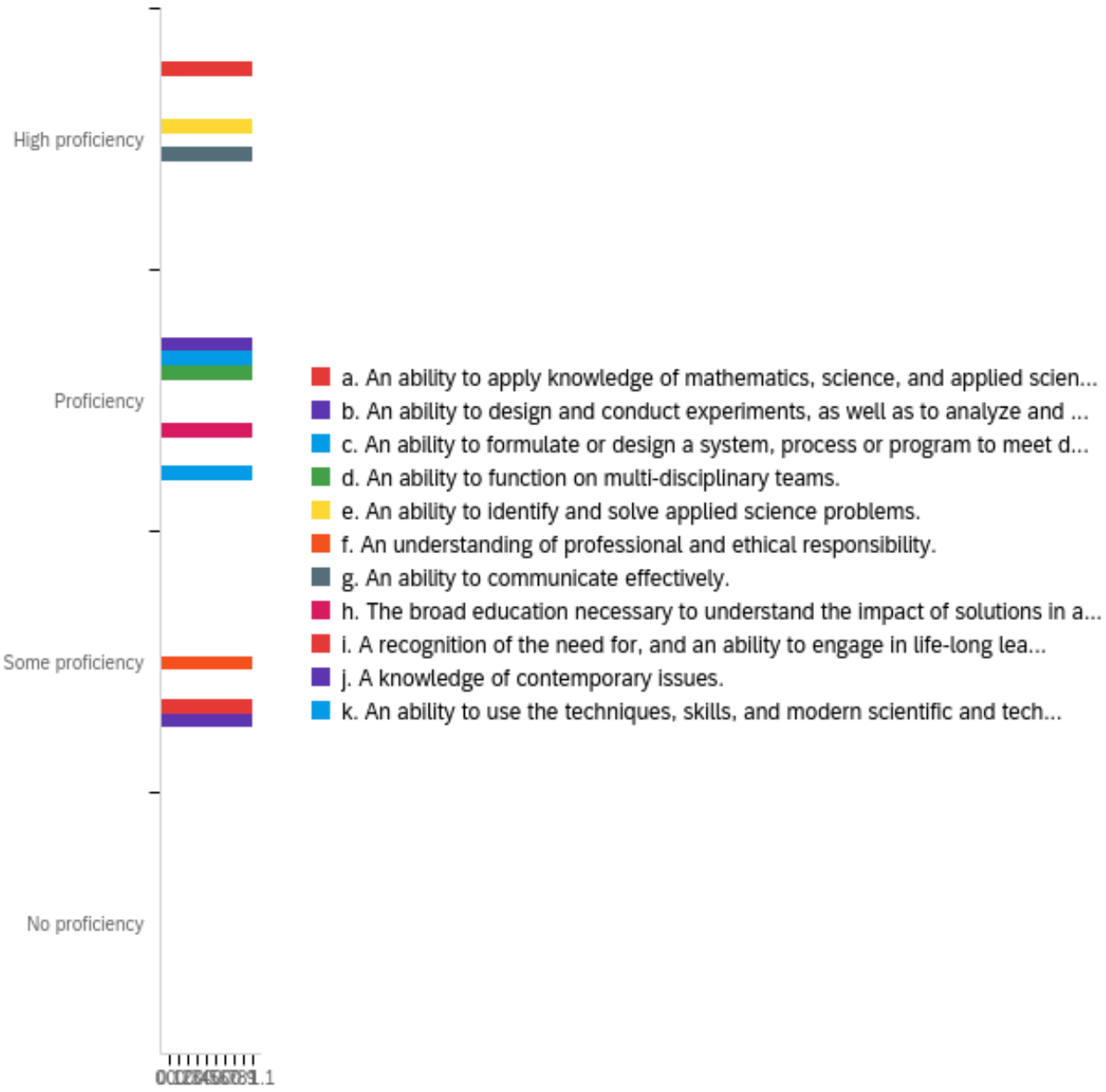
Note: The Senior Exit Survey is administered by the Department of Online Learning and has not yet been updated to the current ANSAC-ABET 1-6 Student Criteria. This oversight will be corrected.

BGMS

(2022-23) Student Exit Survey

September 12th 2023, 11:18 am PDT

Q BGMS 1 - Program Student Learning Outcomes for Geomatics B.S. Surveying Option Please rate your proficiency in the following areas.



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	a. An ability to apply knowledge of mathematics, science, and applied sciences.	1.00	1.00	1.00	0.00	0.00	1
2	b. An ability to design and conduct	2.00	2.00	2.00	0.00	0.00	1

	experiments, as well as to analyze and interpret data.						
3	c. An ability to formulate or design a system, process or program to meet desired needs.	2.00	2.00	2.00	0.00	0.00	1
4	d. An ability to function on multi-disciplinary teams.	2.00	2.00	2.00	0.00	0.00	1
5	e. An ability to identify and solve applied science problems.	1.00	1.00	1.00	0.00	0.00	1
6	f. An understanding of professional and ethical responsibility.	3.00	3.00	3.00	0.00	0.00	1
7	g. An ability to communicate effectively.	1.00	1.00	1.00	0.00	0.00	1
8	h. The broad education necessary to understand the impact of solutions in a global and societal context.	2.00	2.00	2.00	0.00	0.00	1
9	i. A recognition of the need for, and an ability to	3.00	3.00	3.00	0.00	0.00	1

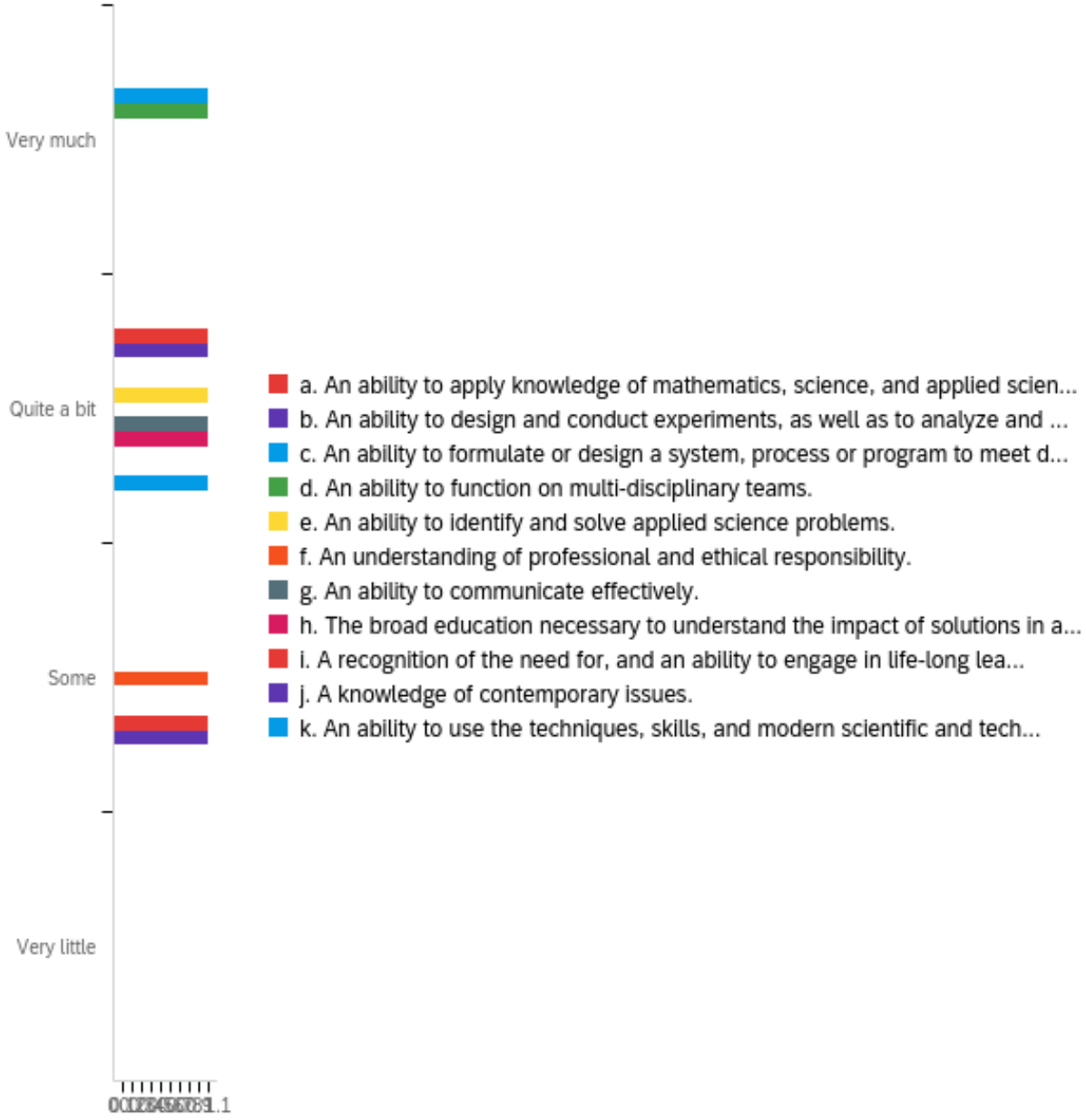
	engage in life-long learning.						
10	j. A knowledge of contemporary issues.	3.00	3.00	3.00	0.00	0.00	1
11	k. An ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.	2.00	2.00	2.00	0.00	0.00	1

#	Question	High proficiency		Proficiency		Some proficiency		No proficiency		Total
1	a. An ability to apply knowledge of mathematics, science, and applied sciences.	100.00%	1	0.00%	0	0.00%	0	0.00%	0	1
2	b. An ability to design and conduct experiments, as well as to analyze and interpret data.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1

3	c. An ability to formulate or design a system, process or program to meet desired needs.	0.00%	0	100.00 %	1	0.00%	0	0.00%	0	1
4	d. An ability to function on multi-disciplinary teams.	0.00%	0	100.00 %	1	0.00%	0	0.00%	0	1
5	e. An ability to identify and solve applied science problems.	100.00 %	1	0.00%	0	0.00%	0	0.00%	0	1
6	f. An understanding of professional and ethical responsibility.	0.00%	0	0.00%	0	100.00 %	1	0.00%	0	1
7	g. An ability to communicate effectively.	100.00 %	1	0.00%	0	0.00%	0	0.00%	0	1
8	h. The broad education necessary to understand the impact of solutions in a global	0.00%	0	100.00 %	1	0.00%	0	0.00%	0	1

	and societal context.									
9	i. A recognition of the need for, and an ability to engage in life-long learning.	0.00%	0	0.00%	0	100.00%	1	0.00%	0	1
10	j. A knowledge of contemporary issues.	0.00%	0	0.00%	0	100.00%	1	0.00%	0	1
11	k. An ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1

Q BGMS 2 - Program Student Learning Outcomes for Geomatics B.S. Geographic Information Systems Option How much has your experience at Oregon Tech contributed to your knowledge, skills, and personal development in these areas?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	a. An ability to apply knowledge of mathematics, science, and applied sciences.	2.00	2.00	2.00	0.00	0.00	1

2	b. An ability to design and conduct experiments, as well as to analyze and interpret data.	2.00	2.00	2.00	0.00	0.00	1
3	c. An ability to formulate or design a system, process or program to meet desired needs.	1.00	1.00	1.00	0.00	0.00	1
4	d. An ability to function on multi-disciplinary teams.	1.00	1.00	1.00	0.00	0.00	1
5	e. An ability to identify and solve applied science problems.	2.00	2.00	2.00	0.00	0.00	1
6	f. An understanding of professional and ethical responsibility.	3.00	3.00	3.00	0.00	0.00	1
7	g. An ability to communicate effectively.	2.00	2.00	2.00	0.00	0.00	1
8	h. The broad education necessary to understand the impact of solutions in a global and societal context.	2.00	2.00	2.00	0.00	0.00	1
9	i. A recognition	3.00	3.00	3.00	0.00	0.00	1

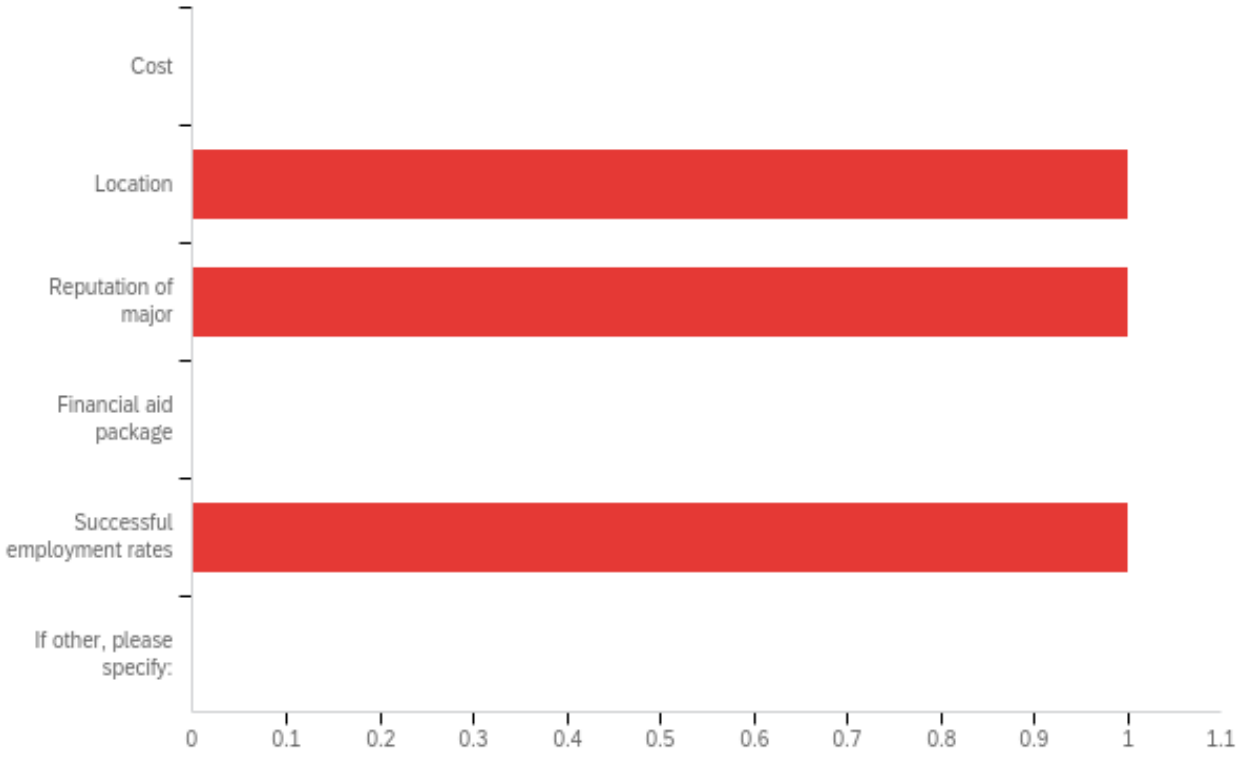
	of the need for, and an ability to engage in life-long learning.						
10	j. A knowledge of contemporary issues.	3.00	3.00	3.00	0.00	0.00	1
11	k. An ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.	2.00	2.00	2.00	0.00	0.00	1

#	Question	Very much		Quite a bit		Some		Very little		Total
1	a. An ability to apply knowledge of mathematics, science, and applied sciences.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1
2	b. An ability to design and conduct experiments, as well as to analyze and interpret data.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1
3	c. An ability to	100.00%	1	0.00%	0	0.00%	0	0.00%	0	1

	formulate or design a system, process or program to meet desired needs.									
4	d. An ability to function on multi-disciplinary teams.	100.00%	1	0.00%	0	0.00%	0	0.00%	0	1
5	e. An ability to identify and solve applied science problems.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1
6	f. An understanding of professional and ethical responsibility.	0.00%	0	0.00%	0	100.00%	1	0.00%	0	1
7	g. An ability to communicate effectively.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1
8	h. The broad education necessary to understand the impact of solutions in a global and societal context.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1
9	i. A recognition of the need	0.00%	0	0.00%	0	100.00%	1	0.00%	0	1

	for, and an ability to engage in life-long learning.									
10	j. A knowledge of contemporary issues.	0.00%	0	0.00%	0	100.00%	1	0.00%	0	1
11	k. An ability to use the techniques, skills, and modern scientific and technical tools necessary for professional practice.	0.00%	0	100.00%	1	0.00%	0	0.00%	0	1

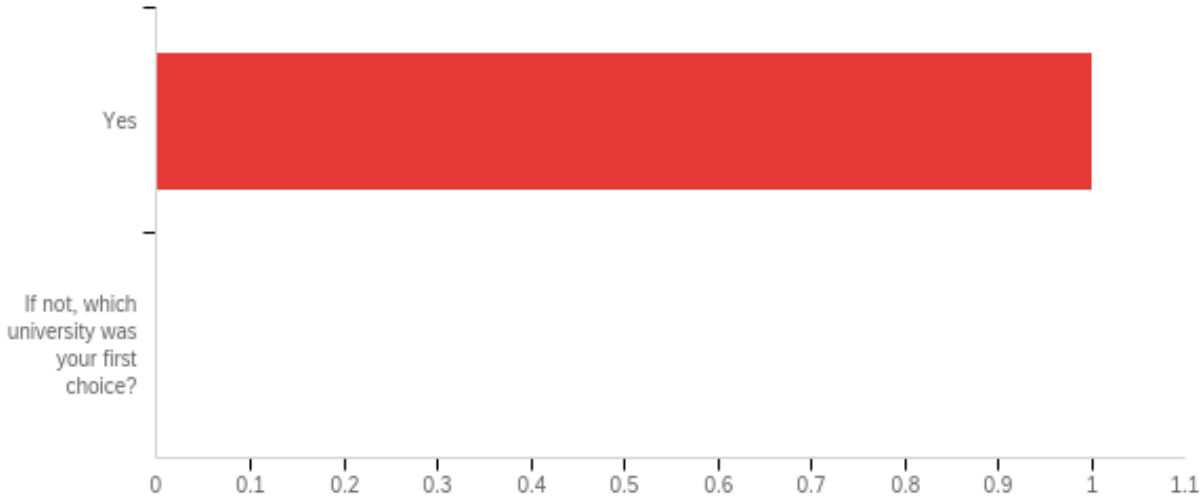
Q BGMS 3 - What attracted to you to Oregon Tech? Please check all that apply.



#	Answer	%	Count
1	Cost	0.00%	0
2	Location	33.33%	1
3	Reputation of major	33.33%	1
4	Financial aid package	0.00%	0
5	Successful employment rates	33.33%	1
6	If other, please specify:	0.00%	0
	Total	100%	3

Q BGMS 3_6_TEXT - If other, please specify:
If other, please specify: - Text

Q BGMS 4 - Was Oregon Tech your first choice?

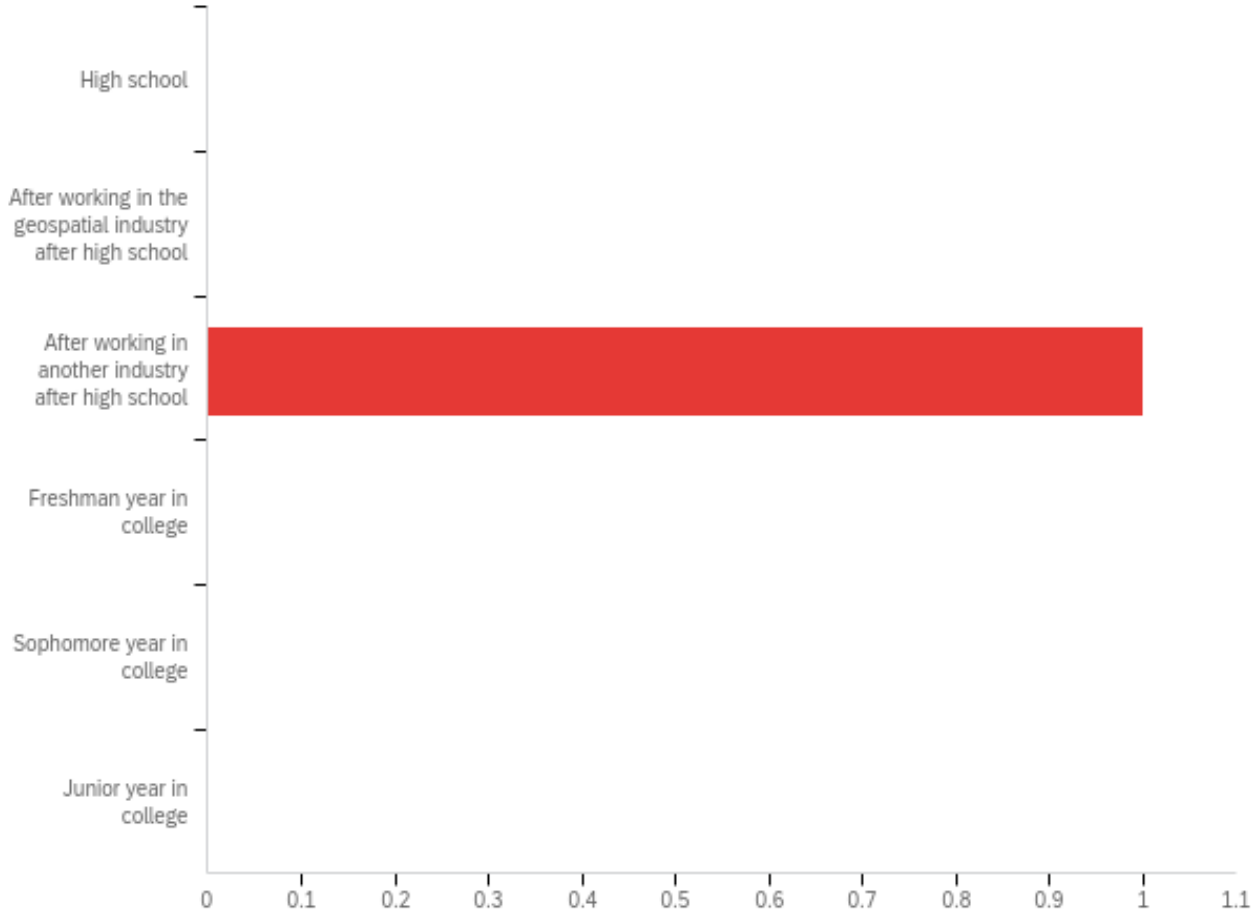


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Was Oregon Tech your first choice? - Selected Choice	1.00	1.00	1.00	0.00	0.00	1

#	Answer	%	Count
1	Yes	100.00%	1
2	If not, which university was your first choice?	0.00%	0
	Total	100%	1

Q BGMS 4_2_TEXT - If not, which university was your first choice?
If not, which university was your first choice? - Text

Q BGMS 5 - When did you choose Geomatics as a major?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	When did you choose Geomatics as a major?	3.00	3.00	3.00	0.00	0.00	1

#	Answer	%	Count
1	High school	0.00%	0
2	After working in the geospatial industry after high school	0.00%	0
3	After working in another industry after high school	100.00%	1
4	Freshman year in college	0.00%	0
5	Sophomore year in college	0.00%	0
6	Junior year in college	0.00%	0

	Total	100%	1

Q BGMS 6 - How many summer internships did you complete?

How many summer internships did you complete?

3