BASIC PROGRAM INFORMATION

Program Review is about documenting the discussions and plans you have for improving student success in your program and sharing that information with the college community. It is also about linking your plans to decisions about resource allocations. With that in mind, please answer the following questions.

Program/Department Name: Geospatial Technology

Division Name: Business and Social Sciences

Please list all team members who participated in this Program Review:

Name	Department	Position
K. Allison Lenkeit Meezan	GEOG/GIST	Faculty

Number of Full Time Faculty: 1 **Number of Part Time Faculty:** 4

Please list all existing Classified positions: *Example: Administrative Assistant I*

SECTION 1: PROGRAM REFLECTION

1A. Program Update: Based on the program review data, please tell us how your program did last year. We are particularly interested in your proudest moments or achievements related to student success and outcomes.

The Geospatial Technology department has greatly increased its on campus presence with the addition of a second full time faculty member in 2014-15. In addition, the program has added (as of Fall 2015) three new transcriptible certificates and an AS degree. The program has already seen an increase in the number of trancriptible certificates awarded (12 in 2015, and 11 in 2016), and it is the hope that this will increase further with a targeted effort of faculty advising and engagement with the counseling division to streamline the application process for students.

The program has increased its unduplicated headcount (27%), enrollment (112%) and WSCH (128%). While the program remains small (22 FTES in 2014-15) it has grown (125%) in three years. The role of the Geospatial Technology program as a CTE program training students for the regional job market dictates that it remain small so that supply does not outpace demand. However, the program will continue to emphasize certificate completion (students are often hired or gain sufficient skills to advance in their current job prior to completing the program) and increase success rates, particularly among targeted groups.

The Geospatial Technology program remains highly engaged with the regional professional Geospatial community by actively participating in the BayGeo professional group, networking with employers to secure student internships, and building connections with the regional programs that offer Geospatial Technology education and training: San Jose State, San Francisco State, City College of San Francisco

Extended Education program, Stanford and Berkeley. Foothill remains an important piece of the regional GIS education spectrum: we are the only institution in the region to offer a comprehensive GIS training program at the community college level.

1B. Program Improvement: What areas or activities are you working on this year to improve your program? Please respond to any feedback from the supervising administrator from last year's program review.

The Geospatial Technology program is in its 16th year at Foothill College. In that time, the program has maintained a steady, and robust enrollment. However, one of the major challenges that has faced the program is getting students who have completed the entire program curriculum to apply for their transcriptible certificate. In past years, approximately 70% of the students completing the program have been awarded a certificate. An unofficial survey of students revealed that the roadblocks were primarily in seeing an academic counselor to complete the paperwork associated with applying for the certificate. In 2014-15, the GIST faculty began to work with counseling to bring a counselor to the evening GIST core class to meet with students and fill out required paperwork for the transcriptible certificate. The result was an increase of nearly 250% in the number of certificates awarded between 2013 and 2016. The program continues to work with counseling to provide access and resources to the students in this primarily evening program.

A second challenge faced by the Geospatial Technology program has been that students often would not complete the program and receive their certificates because they gained sufficient skills to advance in their job or were hired prior to completing their coursework. EMSI data indicates 473 job openings requiring GIS skills in the San Francisco Bay Area in 2016, with a predicted growth rate of 5.3%. To address this, the faculty has built a series of tiered certificates under the advisement of the program's professional advisory board. The certificates and AS degree were approved by the State Chancellor's office in June 2015. The first certificate can be earned with 22 quarter units and is aimed at students who want to use GIS as a supporting tool in their present career. The third certificate (46 quarter units) is targeted at students who hope to build a career as a GIS technician.

1C. Measures of Success: What data or information will you use to measure your success (e.g. student success rates, changes in student or program learning outcomes)?

The student success rates are the primary metric used to measure program success. The success rates have remained steady at 84-88%. Of note, the success rates among targeted groups in GIST is 86%.

The Student Learning Outcome data has not provided a consistent or especially meaningful pattern of assessment, primarily because prior to hiring a second full time faculty member for 2014-15, the department was primarily adjunct (76% of course offerings) and adjunct faculty were not active in participating in the SLO process, thus the data collected was not fully representative of department outcomes. With the addition of a second full time faculty member to share department duties and increase the fraction of classes taught by full time faculty, it is the hope of this department to evolve the SLO process into a more meaningful reflection and assessment of teaching and learning.

1D. EMP Goal: The 2015-2020 Educational Master Plan (EMP) includes the following goal:
"Create a culture of equity that promotes student success, particularly for underserved students."

Based on the program review data, tell us some of the things your program will be doing this year to support this goal. You will be asked to report on any accomplishments on your next comprehensive program review.

The Geospatial Technology program promotes a culture of equity and inclusion. The faculty are keenly aware of student learning differences and barriers to success that reach beyond the classroom and strive to build a classroom environment that emphasizes inclusion, as well as reaching out to all students to make them aware of college support services that can provide them with the foundation tools necessary for success. The program reports a consistent high level of success among nearly all ethnic groups, though the program numbers are small, making broad generalizations of success among targeted groups challenging. The overall success rate among targeted groups is 86%.

SECTION 2: PROGRAM OBJECTIVES & RESOURCE REQUESTS

2A. New Program Objectives: Please list any new objectives (do not list your resource requests).

Program Objective	Implementation Timeline	Progress Measures
Example: Offer 2 New Courses to Meet Demand	*Winter 2016 Term*	*Course Enrollment*

2B. Resource Requests: Using the table below, summarize your program's unfunded resource requests. Refer to the Operations Planning Committee (OPC) website for current guiding principles, rubrics and resource allocation information.

Resource Request	$	Program Objective (Section 2A)	Type of Resource Request			
			Full-Time Faculty/Staff Position	One-Time B-Budget Augmentation	Ongoing B-Budget Augmentation	Facilities and Equipment
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐
			☐	☐	☐	☐

2C. Unbudgeted Reassigned Time: Please list and provide rationale for requested reassign time.

$9,600 for duties associated with department chair. These include hiring and mentoring adjunct faculty (2 hours per month), curriculum development and revision (1 hours per month), department scheduling (1 hours per month), coordinating department SLOs (1 hour per month), mentoring and advising program students (5 hours per month), participating in professional organizations and outreach to build internship opportunities for students (5 hours per month) and writing the department program review (1 hour per month). This is approximately 170 hours annually, or based

on Appendix G of the Agreement $9,600

SECTION 3: LEARNING OUTCOMES ASSESSMENT SUMMARY

3A. Attach 2015-2016 Course-Level Outcomes: Four Column Report for CL-SLO Assessment from TracDat. Please contact the Office of Instruction to assist you with this step if needed.

3B. Attach 2015-2016 Program-Level Outcomes: Four Column Report for PL-SLO Assessment from TracDat. Please contact the Office of Instruction to assist you with this step if needed.

SECTION 4: FEEDBACK AND FOLLOW-UP

This section is for the Dean/Supervising Administrator to provide feedback.

4A. Strengths and successes of the program as evidenced by the data and analysis:

The GIST Program has been led by an outstanding full time faculty member in K. Allison Lenkeit Meezan for 16 years. Allison has done a fantastic job of keeping the program current and in maintaining an active advisory board of industry leaders who meet frequently and provide the program with feedback regarding the currency of program offerings and job market needs. With the addition of a second full-time faculty member to the Geography/GIST department in 14-15, the program began to expand its scope and look at ways it can grow. Unfortunately that faculty member left in 2016 and we are searching for a replacement to help Allison with both departments. As the data indicate, student success rates are high for this program and I believe that reflects the career focus and relevancy of course content, as well as high student and faculty engagement.

4B. Areas of concern, if any:

No areas of concern

4C. Recommendations for improvement:

The addition of a second full time faculty member to the Geography and GIST departments will enable the program to expand beyond its current limitations.

4D. Recommended Next Steps:

- ☐ Proceed as Planned on Program Review Schedule
- ☐ Further Review / Out-of-Cycle In-Depth Review

Upon completion of Section 4, the Program Review document should be returned to department faculty/staff for review, then submitted to the Office of Instruction and Institutional Research for public posting. Please refer to the Program Review timeline.

Unit Course Assessment Report - Four Column

Foothill College

Department - Geospatial Technology (GIST)

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Geospatial Technology (GIST) - GIST 11 - INTRODUCTION TO MAPPING & SPATIAL REASONING - SLO 1- Using maps and GIS&T for geographic inquiry. - Describe how paper maps and Geospatial Technology can be used for geographic inquiry. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Students describe in an essay question how paper maps and GIST can be used for geographic inquiry **Assessment Method Type:** Essay/Journal		
Department - Geospatial Technology (GIST) - GIST 11 - INTRODUCTION TO MAPPING & SPATIAL REASONING - SLO 3 - Problem solving with GIS&T - Describe how GIS&T helps to solve problems of a spatial context. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Students are asked to solve, or describe how they would solve a spatial problem using GIST **Assessment Method Type:** Class/Lab Project		
Department - Geospatial Technology (GIST) - GIST 11 - INTRODUCTION TO MAPPING & SPATIAL REASONING - SLO 4 - Interpret maps and data. - Interpreting maps and data. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Students interpret maps in a class project **Assessment Method Type:** Class/Lab Project	05/12/2016 - Students were asked to interpret several qualitative and quantitative maps.They were asked to identify information represented in the maps, and explain how the maps could be used together to gain new insight into a problem. 10% of the students completed this task at an 'Advanced' level. 80% of the students were able to complete this task at a 'Proficient' level and 10% of the students completed the task at a developing level. **Result:** Target Met **Year This Assessment Occurred:** 2015-2016 **Resource Request:** Continue to provide support for 'smart'	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		classrooms with laptop computers to allow students to access a wide variety of digital cartographic products to practice this skill.	
Department - Geospatial Technology (GIST) - GIST 11 - INTRODUCTION TO MAPPING & SPATIAL REASONING - Evaluate cartographic products in terms of their aesthetic design and ability to communicate information. - Evaluate cartographic products in terms of their aesthetic design and ability to communicate information. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** As a group, collect 6 or more maps that display the same information in different ways. Possible theme ideas include: College campuses Light rail/subway system maps City trash collection days Zoos City tourist maps Regional political maps such as 'Europe' or 'The Middle East' Amusement parks Parks or open space areas under different jurisdictions (eg. national park, state park, county park) Whole earth topography Create a 10 minute presentation that compares the effectiveness of the different maps. Consider the scale, resolution, coordinate systems, data sources, accuracy and the map's purpose/audience. Which maps are most or least effective for their intended purpose? Do any maps employ especially innovative or effective cartography? **Assessment Method Type:** Class/Lab Project **Target for Success:** Students successfully assess maps in terms of the criteria outlined on their assignment	06/27/2014 - Students completed the project. 50% of the students completed the project very successfully. 50% of the students completed the project successfully. **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** Additional hard copy map products to help students practice.	10/18/2016 - Continue to present students with high quality examples of cartographic products and work with them to build an understanding of how spatial information is communicated 06/27/2014 - As this outcome was successfully met, the action plan is to continue with the present methodology.
Department - Geospatial Technology (GIST) - GIST 11 - INTRODUCTION TO MAPPING & SPATIAL REASONING - Demonstrate the	**Assessment Method:** Students use a GIS to analyze a real world problem and make an informed decision		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
use of geographic technologies to analyze real world problems and make informed, data driven decisions. - Demonstrate the use of geographic technologies to analyze real world problems and make informed, data driven decisions. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method Type:** Class/Lab Project		
Department - Geospatial Technology (GIST) - GIST 11 - INTRODUCTION TO MAPPING & SPATIAL REASONING - Describe how to access different sources of data, describe the process of creating data with different geographic technologies, and discuss the fundamental concepts of data quality - Describe how to access different sources of data, describe the process of creating data with different geographic technologies, and discuss the fundamental concepts of data quality (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Students describe how to access different sources of data and describe and discuss the process of creating data with different GIST. **Assessment Method Type:** Discussion/Participation	03/12/2015 - Students were asked a critical thinking question regarding creating data with different geographic technologies. The question specifically addressed the concept of data quality. Of the 16 students who completed the assessment, 12 completed it at an 'Excellent' level indicating that they fully understood the importance of meta data and data documentation, and accurately identified several sources of good quality data. 3 students completed the assessment at a 'Competent' level, which indicated that there were gaps in their understanding of the role of meta data in data documentation and/or they were not successful in accurately identifying sources of high quality data. One student completed the assessment at an 'Adequate' level. This students was able to define 'metadata' but was not able to apply the concept to data quality standards. This student was able to identify sources of accurate data, but was unable to explain why the data was a good source. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** Access to classroom with laptop computers with internet access so that students can engage in active learning with digital data sources. **GE/IL-SLO Reflection:**	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		This assessment is related to 'Critical and Analytical Thinking' because it required students to access multiple data sources and assess their validity.	
Department - Geospatial Technology (GIST) - GIST 11 - INTRODUCTION TO MAPPING & SPATIAL REASONING - Identify, explain, and interpret spatial patterns and relationships, such as how places are similar and different, the nature of transitions between places, and how places are linked at local, regional, and/or global scales. - Identify, explain, and interpret spatial patterns and relationships, such as how places are similar and different, the nature of transitions between places, and how places are linked at local, regional, and/or global scales. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** In a class exercise students identify, explain and interpret the spatial patterns and relationships between places. **Assessment Method Type:** Class/Lab Project		
Department - Geospatial Technology (GIST) - GIST 12 - INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 1 - Definition - Define a Geographic Information System. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Exam question in which a student is asked to define a GIS **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** Student is able to define a GIS	11/19/2015 - Short answer question was included on midterm exam "Define 'Geographic Information System' (GIS)". A student received a score of 'excellent' if they (1)noted that this was a computerized or computer based system, and (2) used the following terms or synonyms in their answer: 'store data', 'analyze data', 'display data', and 'spatial data'. 23 students were assessed. 13 scored 'excellent'. Five students earned a score of 'good' by including 3 of the above elements. One scored 'fair' by including 1-2 of the above elements. One scored 'poor' by attempting an answer that referenced computers and maps. Three students did not answer the question. **Result:** Target Met **Year This Assessment Occurred:**	10/18/2016 - Continue to offer high quality instruction with real world examples and hands on work 11/19/2015 - As the target was met, instructors will continue to teach Geospatial technology with innovative and engaging pedagogy.

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		2015-2016 **Resource Request:** Continue to provide computer labs with up to date desktop computers and a site license to ArcGIS software as well as administrative support to run the computer lab. **Resource Request:** Continue to provide computer labs with up to date desktop computers and a site license to ArcGIS software as well as administrative support to run the computer lab. **GE/IL-SLO Reflection:** This SLO is related to the Computation IL-SLO because it assesses students understanding of computer software tools.	
		03/22/2012 - Two sections of this course were offered in Fall 2011 (the only quarter each year this class is offered). The only full time faculty member in the department was on PDL that quarter, so no assessment was organized or reported. The Geography department currently has one full time faculty member, and seven adjuncts. There is no support provided for organizing the department wide SLO assessment, or gathering the data from adjuncts who have various schedules and in some cases do not teach on campus at all, or in compiling, analyzing and reporting on the data. Once the college has prioritized program assessment to be an integrated element of department duties, with adequate compensation for the administrative duties as well as the authority to require participation and compliance from all adjunct faculty, perhaps this will become a meaningful and useful process. As it is, the faculty feel it highly unlikely that this report is being read at all, and if it is, the faculty encourages the relevant member of the administrative team to contact the Geography department to acknowledge that this Student	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Learning Outcome Assessment has been reviewed. **Result:** Target Met **Year This Assessment Occurred:** 2011-2012 **Resource Request:** greater funding and administrative support to organize SLO assessment among adjuncts **GE/IL-SLO Reflection:** Two sections of this course were offered in Fall 2011 (the only quarter each year this class is offered). The only full time faculty member in the department was on PDL that quarter, so no assessment was organized or reported. The Geography department currently has one full time faculty member, and seven adjuncts. There is no support provided for organizing the department wide SLO assessment, or gathering the data from adjuncts who have various schedules and in some cases do not teach on campus at all, or in compiling, analyzing and reporting on the data. Once the college has prioritized program assessment to be an integrated element of department duties, with adequate compensation for the administrative duties as well as the authority to require participation and compliance from all adjunct faculty, perhaps this will become a meaningful and useful process. As it is, the faculty feel it highly unlikely that this report is being read at all, and if it is, the faculty encourages the relevant member of the administrative team to contact the Geography department to acknowledge that this Student Learning Outcome Assessment has been reviewed.	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Geospatial Technology (GIST) - GIST 12 - INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 2 - Vector and raster GIS - Identify, compare and Contrast vector and raster GIS. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** A critical thinking question in which as student is asked to compare and contrast vector and raster GIS **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** Student is able to successfully compare and contrast vector and raster GIS	01/06/2014 - A - 17 B - 4 C - 1 D - 0 F - 1 (did not participate) **Result:** Target Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** None **GE/IL-SLO Reflection:** Keep doing what we are doing.	
Department - Geospatial Technology (GIST) - GIST 12 - INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 3 - Cartographic principles - Apply cartographic principles of scale, resolution, projection, data management and spatial analysis to a geographic nature using a GIS. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student undertakes a GIS project in which they are asked to apply cartographic principles of scale, resolution, projections, data management and spatial analysis **Assessment Method Type:** Class/Lab Project **Target for Success:** Student successfully applies cartographic principles of scale, resolution, projections, data management and spatial analysis using a GIS	01/13/2015 - 18 students were administered this SLO assessment as their final project. 13 received a score of 5, three received a score of 4 and two received a score of 2. The overall reflection from this assessment is that the outcome was largely successful. The changes that the instructors would make to increase success include more individual check-ins with students in planning their projects. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015	
		01/07/2013 - Two sections of GEOG12 were assessed. The results were as follows: A- 14 B - 10 C- 3 D- 0 F-2 **Result:** Target Met **Year This Assessment Occurred:** 2012-2013 **GE/IL-SLO Reflection:**	01/07/2013 - Teach, analyze, repeat

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Students are not being as successful as the instructors would like. We believe that this is the result of many students being underprepared for the work we are asking them to do. The action plan for this is to revise the GIS curriculum and spread out the scaffolding activities for this SLO among three classes.	
Department - Geospatial Technology (GIST) - GIST 52 - ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 1 - Data conversion - Demonstrate the process of converting analogue data to digital data for us in GIS. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to demonstrate how to convert analogue data to digital data using a GIS **Assessment Method Type:** Class/Lab Project **Target for Success:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = adequate conversion of analogue data to digital data using GIS. Unsuccessful (equivalent to a D or F) = inadequate conversion of analogue data to digital data using GIS.	03/31/2016 - Students were asked to convert a table of air quality station locations in latitude / longitude coordinates to a geodatabase feature class or shapefile. If successful, this met the minimum requirement for the assessment. A second step was to join a table of ozone values to the stations table and display ozone levels in a map. Out of 24 students that were assessed, 22 (91.6%) were successful in completing the process of converting the table to a GIS point file. However, only 16 students were able to complete the second step of joining tables (not required for assessment success). Students showed proficiency in converting written location values to digital GIS data, and managed to successfully define the coordinate system during the data import process, a step that often results in data errors. Although throughout the course students were required to join tables in numerous instances, this concept and practice should continue to be covered in subsequent courses. Some students attempted to create a relationship class rather than build a simple join, indicating that for some students there is conceptual understanding of relating tables, but continued practice with the software is needed. **Result:** Target Met	10/18/2016 - Continue to offer high quality instruction with real world examples and hands on exercises 03/31/2016 - Students responded well to the process of introducing theory, followed with demonstration, hands-on practice, and review. Repetition of concepts associated with coordinate systems and projections was well-received by students and seems to have reduced confusion with this often problematic topic. In subsequent offerings of this course the instructor will increase attention given to creating table joins in order to better establish this as a well developed skill for a larger percentage of students.

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Year This Assessment Occurred: 2015-2016	
		11/21/2013 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2012-2013 **Resource Request:** Additional institutional support for requiring adjuncts to conduct SLO assessments	11/21/2013 - Continue to encourage adjunct instructors to participate in SLO process.
		08/24/2012 - This course was taught by an adjunct instructor. No assessment findings or reflections were reported. At the present time, the college does not provide the resources to enforce the reporting of assessments or enforce reflecting on their outcomes. **Result:** Target Not Met **Year This Assessment Occurred:** 2011-2012 **Resource Request:** Provide for a system that requires the instructor of each course to fill out this form, rather than the only full time instructor in the department. **GE/IL-SLO Reflection:** This is a 'make work' system. The faculty member who is required to fill out this form is not the one who teaches the class and does not know what was or was not achieved with the assessment. The college currently does not have a system in place to require instructors to participate in this time consuming enterprise.	
Department - Geospatial Technology (GIST) - GIST 52 - ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 2 -	**Assessment Method:** Student is asked to complete a GIS project		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Data sources - Identify and discuss GIS data sources. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	in which they identify and discuss data sources **Assessment Method Type:** Class/Lab Project **Target for Success:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = Student accurately identifies and uses GIS data in an appropriate manner from a variety of sources. Unsuccessful (equivalent to a D or F) = Student is unable to adequately identify and discuss data sources.		
Department - Geospatial Technology (GIST) - GIST 52 - ADVANCED GEOGRAPHIC INFORMATION SYSTEMS (GIS) - SLO 3 - GIS databases - Create new GIS databases. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to create a new GIS database **Assessment Method Type:** Class/Lab Project **Target for Success:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = Student creates a new GIS database that functions correctly. Unsuccessful (equivalent to a D or F) = Student incorrectly or fails to create a GIS database that functions properly.	07/14/2015 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **GE/IL-SLO Reflection:** SLO is mapped to IL in Tracdat	07/14/2015 - Encourage adjunct instructors to conduct SLOs
		06/27/2014 - This course was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** institutional method to evaluate and support adjunct instructors in completing SLO assessments	06/27/2014 - Put an institutional structure in place to support and evaluate adjunct instructors on SLO work.
Department - Geospatial Technology (GIST) - GIST 53 - ADVANCED GEOSPATIAL TECHNOLOGY & SPATIAL ANALYSIS -	**Assessment Method:** Students determine an appropriate approach to solving a problem using		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Problem solving - Determine an appropriate approach to solving a problem using geospatial tools and methods. (Created By Department - Geospatial Technology (GIST)) **Assessment Cycles:** End of Academic Year **Course-Level SLO Status:** Active	geospatial tools and methods, then try to solve the problem. **Assessment Method Type:** Class/Lab Project		
Department - Geospatial Technology (GIST) - GIST 53 - ADVANCED GEOSPATIAL TECHNOLOGY & SPATIAL ANALYSIS - Prepare data for use in analysis. - Student will be able to prepare data for use in Geospatial analysis. (Created By Department - Geospatial Technology (GIST)) **Assessment Cycles:** End of Academic Year **Course-Level SLO Status:** Active	**Assessment Method:** In a class lab students prepare a dataset for use in Geospatial analysis **Assessment Method Type:** Class/Lab Project		
Department - Geospatial Technology (GIST) - GIST 53 - ADVANCED GEOSPATIAL TECHNOLOGY & SPATIAL ANALYSIS - Geoprocessing - Run geoprocessing tools individually and implement a model to run several tools in sequence. (Created By Department - Geospatial Technology (GIST)) **Assessment Cycles:** End of Academic Year **Course-Level SLO Status:** Active	**Assessment Method:** Students use a GIS to run geoprocessing tools and implement a model to run several tools in a sequence. **Assessment Method Type:** Class/Lab Project		
Department - Geospatial Technology (GIST) - GIST 53 - ADVANCED GEOSPATIAL TECHNOLOGY & SPATIAL ANALYSIS - Organize data - Organize the data sets resulting from analysis. (Created By Department - Geospatial Technology (GIST)) **Assessment Cycles:** End of Academic Year	**Assessment Method:** Students organize data sets resulting from analysis in a lab project **Assessment Method Type:** Class/Lab Project		

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Course-Level SLO Status: Active			
Department - Geospatial Technology (GIST) - GIST 53 - ADVANCED GEOSPATIAL TECHNOLOGY & SPATIAL ANALYSIS - Present results - Present the results of a geospatial analysis using appropriate terminology and visualizations. (Created By Department - Geospatial Technology (GIST)) **Assessment Cycles:** End of Academic Year **Course-Level SLO Status:** Active	**Assessment Method:** Students present the results of a geospatial analysis **Assessment Method Type:** Presentation/Performance	10/18/2016 - 19 students participated in this assessment. Students were asked to present their work as a poster presentation. Of these 16 presented 'Outstanding' work, 2 presented 'Good' work, and 1 did not participate **Result:** Target Met **Year This Assessment Occurred:** 2015-2016 **Resource Request:** Continue to provide support for 'smart' classrooms with laptop computers to allow students to access a wide variety of digital cartographic products to practice this skill.	10/18/2016 - Continue to offer hands on instruction with real world data.
Department - Geospatial Technology (GIST) - GIST 54A - SEMINAR IN SPECIALIZED APPLICATIONS OF GEOGRAPHIC INFORMATION SYSTEMS I - SLO 1 - GIS applications - Discuss the diverse applications of Geographic Information Systems. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student summarizes the diverse applications of GIS in multiple reaction papers **Assessment Method Type:** Essay/Journal **Target for Success:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = adequately summarizes the diverse applications of GIS in multiple reaction papers. Unsuccessful (equivalent to a D or F) = inadequately summarizes the diverse applications of GIS in multiple reaction papers.	07/14/2015 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **GE/IL-SLO Reflection:** SLO is mapped to IL in Tracdat	10/18/2016 - Continue to offer high quality instruction involving industry professionals in the curriculum development. 10/18/2016 - To continue to communicate with the adjunct instructors the importance of participation in the SLO process 07/14/2015 - Encourage adjunct instructors to conduct SLOs
		06/27/2014 - This course was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Not Met	06/27/2014 - Provide institutional support and evaluation for adjunct instructors to complete SLO assessments

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		Year This Assessment Occurred: 2013-2014 **Resource Request:** institutional method to evaluate and support adjunct instructors in completing SLO assessments	
		08/24/2012 - This course was taught by an adjunct instructor. No assessment findings or reflections were reported. At the present time, the college does not provide the resources to enforce the reporting of assessments or enforce reflecting on their outcomes. **Result:** Target Not Met **Year This Assessment Occurred:** 2011-2012 **Resource Request:** Provide for a system that requires the instructor of each course to fill out this form, rather than the only full time instructor in the department. **GE/IL-SLO Reflection:** This is a 'make work' system. The faculty member who is required to fill out this form is not the one who teaches the class and does not know what was or was not achieved with the assessment. The college currently does not have a system in place to require instructors to participate in this time consuming enterprise.	
Department - Geospatial Technology (GIST) - GIST 54A - SEMINAR IN SPECIALIZED APPLICATIONS OF GEOGRAPHIC INFORMATION SYSTEMS I - SLO 2 - Problem solving - Explain how Geospatial Technology can be used to solve a problem of a geographic nature (Created By	**Assessment Method:** Student summarizes real world case studies to provide examples of how GIST can be used to solve a problem of a geographic nature. **Assessment Method Type:** Essay/Journal	10/18/2016 - This course was taught by an adjunct instructor who did not participate in the SLO process **Result:** Target Not Met **Year This Assessment Occurred:** 2015-2016	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Geography (GEOG)) **Assessment Cycles:** End of Academic Year **Course-Level SLO Status:** Active	**Target for Success:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = adequately summarizes real world case studies to provide examples of how GIST can be used to solve a problem of a geographic nature. Unsuccessful (equivalent to a D or F) = inadequately summarizes real world case studies to provide examples of how GIST can be used to solve a problem of a geographic nature.	**Resource Request:** resources to encourage adjunct instructors to participate in the SLO process	
Department - Geospatial Technology (GIST) - GIST 58 - REMOTE SENSING & DIGITAL IMAGE PROCESSING - SLO 1 - Definition - Define remote sensing. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to define remote sensing **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = Student accurately defines remote sensing. Unsuccessful (equivalent to a D or F) = Student inaccurately defines remote sensing or does not provide an answer	03/20/2016 - Total number of student assessed = 28. Total students who were successful = 25 (89%). Total students who were unsuccessful = 3 (11%). Further breakdown: Excellent (A) = 23; Competent (B) = 2; Failed (F) = 3 . Students were assessed through an essay question. **Result:** Target Met **Year This Assessment Occurred:** 2015-2016	10/18/2016 - Continue to offer high quality instruction with industry standard software and real world examples with hands on teaching exercieses
		11/21/2013 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2012-2013 **Resource Request:** Additional institutional support for requiring adjuncts to conduct SLO assessments	11/21/2013 - Continue to encourage adjunct faculty to participate in SLO process
		08/24/2012 - This course was taught by an adjunct instructor. No assessment findings or reflections were reported. At the present time, the college	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		does not provide the resources to enforce the reporting of assessments or enforce reflecting on their outcomes. **Result:** Target Not Met **Year This Assessment Occurred:** 2011-2012 **Resource Request:** Provide for a system that requires the instructor of each course to fill out this form, rather than the only full time instructor in the department. **GE/IL-SLO Reflection:** This is a 'make work' system. The faculty member who is required to fill out this form is not the one who teaches the class and does not know what was or was not achieved with the assessment. The college currently does not have a system in place to require instructors to participate in this time consuming enterprise.	
Department - Geospatial Technology (GIST) - GIST 58 - REMOTE SENSING & DIGITAL IMAGE PROCESSING - SLO 2 - Remote sensing applications - Discuss the applications of remote sensing with Geographic Information Systems (GIS) (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to discuss how remote sensing is used in the context of GIS **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = Student is able to successfully discuss how remote sensing is used in the context of a GIS. Unsuccessful (equivalent to a D or F) = Student is unable to successfully discuss how remote sensing is used in the context of a GIS OR does not provide an answer.	07/14/2015 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **GE/IL-SLO Reflection:** SLO is mapped to IL in Tracdat	07/14/2015 - Encourage adjunct faculty to conduct SLOs

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Department - Geospatial Technology (GIST) - GIST 58 - REMOTE SENSING & DIGITAL IMAGE PROCESSING - SLO 3 - Electromagnetic spectrum and remote sensing - Discuss the physical basis for remote sensing in terms of the electromagnetic spectrum. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to discuss the physical basis for remote sensing in terms of the electromagnetic spectrum **Assessment Method Type:** Exam - Course Test/Quiz **Target for Success:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = Student is able to discuss the physical basis for remote sensing in terms of the electromagnetic spectrum. Unsuccessful (equivalent to a D or F) = Student is able to discuss the physical basis for remote sensing in terms of the electromagnetic spectrum OR does not provide an answer.	06/27/2014 - This course was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** institutional method to evaluate and support adjunct instructors in completing SLO assessments	06/27/2014 - Provide institutional support and evaluation for adjunct instructors to complete SLO work
Department - Geospatial Technology (GIST) - GIST 59 - CARTOGRAPHY, MAP PRESENTATION & DESIGN - SLO 1 - Map creation - Create maps that demonstrate an understanding of the fundamentals of composition, color, and symbol selection at different scales. (Created By Department - Geography (GEOG)) **Course-Level SLO Status:** Active	**Assessment Method:** Student is asked to create a map that applies the fundamentals of composition, color, and symbol selection at different scales, as discussed in the class **Assessment Method Type:** Class/Lab Project **Target for Success:** Student is able to successfully create a map that applies the fundamentals of composition, color, and symbol selection at different scales, as discussed in the class	10/18/2016 - This course was taught by an adjunct instructor who did not participate in SLO assessment. **Result:** Target Not Met **Year This Assessment Occurred:** 2015-2016 **Resource Request:** resources to encourage adjunct instructors to participate in the SLO process	10/18/2016 - Continue to offer high quality instruction with real world data
		07/14/2015 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **GE/IL-SLO Reflection:** SLO is mapped to IL in Tracdat	07/14/2015 - Encourage adjunct instructors to conduct SLOs

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		06/27/2014 - This course was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Not Met **Year This Assessment Occurred:** 2013-2014 **Resource Request:** institutional method to evaluate and support adjunct instructors in completing SLO assessments	06/27/2014 - Provide institutional support and evaluation for adjunct instructors to complete SLO work
		11/21/2013 - This class was taught by an adjunct instructor and no SLO assessment was conducted. **Result:** Target Met **Year This Assessment Occurred:** 2012-2013 **Resource Request:** Additional institutional support for requiring adjuncts to conduct SLO assessments	11/21/2013 - Continue to encourage adjunct instructors to participate in SLO assessment process
		08/24/2012 - This course was taught by an adjunct instructor. No assessment findings or reflections were reported. At the present time, the college does not provide the resources to enforce the reporting of assessments or enforce reflecting on their outcomes. **Result:** Target Not Met **Year This Assessment Occurred:** 2011-2012 **Resource Request:** Provide for a system that requires the instructor of each course to fill out this form, rather than the only full time instructor in the department. **GE/IL-SLO Reflection:** This is a 'make work' system. The faculty member who is required to fill out this form is not the one who teaches the class and	

Course-Level SLOs	Means of Assessment & Targets for Success / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
		does not know what was or was not achieved with the assessment. The college currently does not have a system in place to require instructors to participate in this time consuming enterprise.	

Unit Assessment Report - Four Column

Foothill College

Program (BSS-GIST) - Geographic Information Systems Analyst CA

PL-SLOs	Means of Assessment & Target / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
Program (BSS-GIST) - Geographic Information Systems Analyst CA - 1 - Interpret spatially distributed data and draw valid conclusions by using maps, graphs and/or Geographic Information Systems (GIS) **SLO Status:** Active	**Assessment Method:** Upon completing first GEOG course, Indirect assessment of student knowledge based on final grade in first GEOG course taken. Data categorized by course (eg. Number of students with A?s B?s C?s etc in GEOG1 as first GEOG course; Number of students with A?s B?s C?s etc in GEOG2 as first GEOG course?) Upon completing second GEOG course, Indirect assessment of student knowledge based on final grade in second GEOG course taken. Data categorized by course (eg. Number of students with A?s B?s C?s etc in GEOG1 having completed GEOG2; Number of students with A?s B?s C?s etc in GEOG1 having completed GEOG5; Number of students with A?s B?s C?s in GEOG01 having completed GEOG10; Number of students with A?s B?s C?s in GEOG2 having completed GEOG1 etc). Upon graduating/transferring with AA in GEOG, number of successful graduation/transfer with AA in GEOG **Assessment Method Type:** Portfolio Review **Target:** Students enrolled in GEOG courses	08/24/2012 - The college did not provide the requested data to validate the assessment. However, based on informal discussion with students who have completed the program, the faculty felt that program goals were met **Result:** Target Met **Year This Assessment Occurred:** 2011-2012 **Resource Request:** Institutional research provide data requested in assessment method.	
Program (BSS-GIST) - Geographic Information Systems Analyst CA - 2 - Apply cartographic principles of scale, resolution, projection, data management and spatial analysis to a problem of a geographic	**Assessment Method:** Student will be placed in 6 hour per week internship after consultation with instructor. Student must have successfully completed GIST 12 and 52 and have completed or be	10/18/2016 - 19 students participated in internships this year and all completed the internships with an A. Students exiting the internships had the skills need in the workplace as verified by the employers hosting the internships	10/18/2016 - Continue to offer high quality teaching and developing program curriculum in close consultation with industry professionals.

PL-SLOs	Means of Assessment & Target / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
nature using a GIS **SLO Status:** Active	concurrently enrolled in GIST 53, 58 or 59. Successful completion of the internship will indicate that students **Assessment Method Type:** Field Placement/Internship **Target:** At least 80% of students should be successful. Successful (equivalent to an A, B, or C score) = Student successfully demonstrated the skills in this PLO by meeting targets as outlined by internship host. Unsuccessful (equivalent to a D or F) = Student did not have the skills required to meet targets outlined by internship host.	**Result:** Target Met **Year This Assessment Occurred:** 2015-2016 12/02/2015 - Successful: 16 students (100%). Unsuccessful: 0 students (0%). Total sample size: 16 students. **Result:** Target Met **Year This Assessment Occurred:** 2014-2015 **Resource Request:** To maintain the high quality of this program, the department requests $3500 to renew the site licese to ESRI ArcGIS software through the CCC Foundation office AND $3500 to purchase updated version of remote sensing software (IDRISI).	12/02/2015 - The internship is a successful tool to measure this PLO and will be used again in the future.
	Assessment Method: Upon completing GEOG12, Indirect assessment of student knowledge based on final grade inGEOG12. Data categorized by course (eg. Number of students with A?s B?s C?s etc in GEOG1 as first GEOG course; Number of students with A?s B?s C?s etc in GEOG2 as first GEOG course?) Upon completing second GEOG course, Indirect assessment of student knowledge based on final grade in second GEOG course taken. Data categorized by course (eg. Number of students with A?s B?s C?s etc in GEOG12 having completed GEOG52; Number of students with A?s B?s C?s etc in GEOG12 having completed GEOG54; Number of students with A?s B?s C?s in GEOG12 having completed GEOG58; Number of students with A?s B?s C?s in GEOG12 having completed GEOG59 etc).		

PL-SLOs	Means of Assessment & Target / Tasks	Assessment Findings/Reflections	Action Plan & Follow-Up
	Upon graduating/transferring with AA in GEOG, number of successful graduation/transfer with AA in GEOG **Assessment Method Type:** Portfolio Review **Target:** Students enrolled in GIS GEOG courses		