

## UNIT REPORT

## Geomatics (BSGEM) - Reviewer's Report - Academic Data

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### Geomatics (BSGEM)

#### BS in Geomatics Mission

##### Mission:

The Mission of the School of Forest Resources and Conservation is to develop and communicate new knowledge and technologies that advance the production, management and conservation of natural resources in an environmentally, economically and socially sustainable manner on local, regional, national and global levels. The School supports the mission of the University of Florida by supporting teaching at the undergraduate and graduate levels, research and scholarship, and service (including Extension) within the broad field of natural resources.

Start: 07/01/2017

End: 06/30/2018

#### PG 1 Professional Employment

**Goal:** Graduates are appropriately prepared for professional employment, including mastery of the breadth and depth of knowledge in their area.

##### Evaluation Method:

- Goal attainment is assessed through the following:
  - successful completion of a nationally-accredited professional curriculum, as developed by the faculty;
  - by evaluative input on preparedness and potential by employers;
  - and by survey of alumni regarding their self-assessment of preparation, last conducted in 2017.

##### Results:

- Evaluation results are provided below:
  - All 26 Geomatics majors graduating in the 2017/2018 academic year successfully completed their professional curriculum. The curriculum is accredited by the Accreditation Board for Engineering and Technology (ABET) through 30 September 2019.
  - Evaluative input provided by employers during stakeholder meetings, including the biennial meeting of the School of Forest Resources & Conservation's Advisory Board, which includes a meeting of the Geomatics Program Advisory Committee, indicates a high degree of satisfaction with graduates, both in terms of preparedness and potential.
  - Survey results collected in 2017 indicate a positive self-assessment by alumni of the program's preparation in these areas. Responding to the statement "I was equipped with the ability to apply knowledge of mathematics, science, and legal principles." 92.9% indicated "Strongly Agree", 100.0% responded "Strongly Agree" or "Agree", with 0.0% indicating "Neutral", "Disagree", or "Strongly Disagree".

XOn Campus: true

XProgram CIP: 15.1102

XOnline: false

XOther Site: true

XIf Other Site: Plant City, FL; Fort Lauderdale, FL

#### PG 2 Critical Thinking

**Goal:** Graduates have developed critical thinking, analytical, and problem-solving skills.

##### Evaluation Method:

- Goal attainment is assessed through the following:
  - successful completion of coursework requiring specific critical thinking, analytical, and problem-solving skills;
  - and by survey of alumni regarding their self-assessment of their critical thinking, analytical, and problem-solving skills, last conducted in 2017.

##### Results:

- Evaluation results are provided below:
  - All 26 Geomatics majors graduating in the 2017/2018 academic year successfully completed their curriculum. This includes successful completion of *SUR4912 Senior Project*, a senior-level course which includes the identification of a problem, a systematic approach to problem-solving, and the presentation of the problem and proposed solution. The School of Forest Resources & Conservation employs a full-time staff member responsible for, among other tasks, identifying and distributing announcements regarding internships, part-time positions, and related, and coordinating with employers seeking specialized candidates, or to arrange on-campus interviews. All Geomatics majors complete two credits of practical work experience (*SUR4949 Co-Op Work Experience*) as part of degree requirements.
  - Survey results collected in 2017 indicate a positive self-assessment by alumni of the program's preparation in these areas, including:
    - Responding to the statement "I was equipped with the ability to analyze and interpret data.", 80.4% indicated "Strongly Agree", 98.2% responded "Strongly Agree" or "Agree", with the 1.8% indicating "Neutral", and 0.0% indicating "Disagree" or "Strongly Disagree".
    - Responding to the statement "I was equipped with the ability to identify, formulate, and solve problems in the field.", 53.6% indicated "Strongly Agree", 82.1% responded "Strongly Agree" or "Agree", with 12.5% indicating "Neutral", and 0.0% indicating "Disagree" or "Strongly Disagree".

- Responding to the statement “I was equipped with the ability to use and adapt technology in a creative manner for optimum productivity.” 64.3% indicated “Strongly Agree”, 94.7% responded “Strongly Agree” or “Agree”, with 3.6% indicating “Neutral”, 1.8% indicating “Disagree”, and 0.0% indicating “Strongly Disagree”.

**XOn Campus:** true

**XProgram CIP:** 15.1102

**XOnline:** false

**XOther Site:** true

**XIf Other Site:** Plant City, FL; Fort Lauderdale, FL

### PG 3 Professional Development

**Goal:** Graduates are stimulated in commitment to professional development, lifelong learning, environmental awareness and a stewardship ethic.

**Evaluation Method:**

- Goal attainment is assessed through the following:
  - student participating in professional organizations, student training and instructorship in environmental awareness educational programs, expression of knowledge in oral and written communications, post-graduate participating in educational programming, and alumni who are surveyed regarding the aspect of society-ready citizenship;
  - and by survey of alumni regarding their self-assessment of their commitment to professional development, lifelong learning, environmental awareness, and a stewardship ethic, last conducted in 2017.

**Results:**

- Evaluation results are provided below:
  - Participation by students in professional organizations is strong, including attendance at the state meeting of the Florida Surveying and Mapping Society, and the Geomatics Student Association. Faculty assessment of stewardship ethic via written and oral communication indicates wide adoption.
  - Survey results collected in 2017 indicate a positive self-assessment by alumni of the program’s preparation in these areas, including:
    - Responding to the statement “I was equipped with the ability to recognize the need for and engage in lifelong learning.” 78.6% indicated “Strongly Agree”, 98.21% responded “Strongly Agree” or “Agree”, with 0.0% indicating “Neutral”, 1.8% indicating “Disagree”, and 0.0% indicating “Strongly Disagree”.
    - Responding to the statement “I was equipped with the ability to work in an ethically and professionally acceptable manner.” 83.9% indicated “Strongly Agree”, 100.0% responded “Strongly Agree” or “Agree”, with 0.0% indicating “Neutral”, “Disagree”, or “Strongly Disagree”.
    - Responding to the statement “I was equipped with the ability to understand the impact of the profession in broader social and environmental contexts.” 75.0% indicated “Strongly Agree”, 98.2% responded “Strongly Agree” or “Agree”, with 0.0% indicating “Neutral”, 1.8% indicating “Disagree”, and 0.0% indicating “Strongly Disagree”.

**XOn Campus:** true

**XProgram CIP:** 15.1102

**XOnline:** false

**XOther Site:** true

**XIf Other Site:** Plant City, FL; Fort Lauderdale, FL

### PG 4 Leadership Skills

**Goal:** Graduates have developed independent, interpersonal, team, and leadership skills.

**Evaluation Method:**

- Goal attainment is assessed by the following:
  - faculty evaluation of student performance in independent and group projects, and in student organizations, as well as in feedback from co-op and permanent employers;
  - and by survey of alumni regarding their self-assessment of their development of independent, interpersonal, team, and leadership skills, last conducted in 2017.

**Results:**

- Evaluation results are provided below:
  - All 26 Geomatics majors graduating in the 2017/2018 academic year successfully completed all course-related projects. All students have received a grade of “satisfactory” from their co-op employer. Feedback from employers has been uniformly positive.
  - Survey results collected in 2017 indicate a positive self-assessment by alumni of the program’s preparation in these areas, including:
    - Responding to the statement “I was equipped with the ability to design and implement projects.” 48.2% indicated “Strongly Agree”, 94.6% responded “Strongly Agree” or “Agree”, with 3.6% indicating “Neutral”, and 0.0% indicating “Disagree” or “Strongly Disagree”.
    - Responding to the statement “I was equipped with the ability to function on multidisciplinary teams.” 64.3% indicated “Strongly Agree”, 96.4% responded “Strongly Agree” or “Agree”, 1.8% indicating “Neutral”, and 0.0% indicating “Disagree” or “Strongly Disagree”.

**XOn Campus:** true

**XProgram CIP:** 15.1102

**XOnline:** false

**XOther Site:** true

**XIf Other Site:** Plant City, FL; Fort Lauderdale, FL

### PG 5 Computer-based Tools

**Goal:** Graduates are well-founded in computer-based tools for analysis and communication.

**Evaluation Method:**

- Computer use is required in coursework throughout the curriculum, both for data analysis and for presentation/communication.

**Results:**

- All 26 Geomatics majors graduating in the 2017/2018 academic year successfully completed their coursework.

**XOn Campus:** true

**XProgram CIP:** 15.1102

**XOnline:** false

**XOther Site:** true

**XIf Other Site:** Plant City, FL; Fort Lauderdale, FL

## PG 6 Communication Skills

**Goal:** Graduates have well-developed written and oral communication skills.

**Evaluation Method:**

- Goal attainment is assessed by the following:
  - successful completion of a diversity of written and oral reports required in courses is required for graduation;
  - and by survey of alumni regarding their self-assessment of their written and oral communication skills, last conducted in 2017.

**Results:**

- Evaluation results are provided below:
  - All 26 Geomatics majors graduating in the 2017/2018 academic year satisfied minimum standards for written and oral communication as part of their successful completion of coursework required for graduation.
  - Survey results collected in 2017 indicate a positive self-assessment by alumni of the program's preparation in these areas. Responding to the statement "I was equipped with the ability to communicate effectively." 50.0% indicated "Strongly Agree", 92.9% responded "Strongly Agree" or "Agree", 3.6% indicating "Neutral", 1.79% indicating "Disagree", and 0.0% indicating "Strongly Disagree".

**XOn Campus:** true

**XProgram CIP:** 15.1102

**XOnline:** false

**XOther Site:** true

**XIf Other Site:** Plant City, FL; Fort Lauderdale, FL

## SLO 1 Knowledge Pertaining to Professional Practice

**Outcome:**

Knowledge of and competency in geometry, statistics, boundary law, surveying and mapping instrument usage, and statutes and ordinances pertaining to professional practice.

**SLO Area (select one):** Content (UG)

**Assessment Method:**

- Competency is assessed through the following:
  - specific coursework, including Quizzes 1-6 and Labs 3, 4, 8, 10-12 in SUR4430 *Surveying and Mapping Practice*; and Meeting Attendance Paper and Design Project Phases 1-6 in SUR4463 *Subdivision Design*;
  - and by survey of alumni regarding their self-assessment of preparation, last conducted in 2017.

**SLO Not Assessed This Year:**

**Results:**

- Evaluation results are provided below:
  - On the specific assignments assessing this SLO, 89.7% of students (n=29) received a 70% or better on at least 80%.
    - Threshold of Acceptability – 70% of students receiving a grade of 70% or better on 80% of assignments
    - Completion Rate – 89.7% of students
    - This meets the threshold of acceptability.
  - Survey results collected in 2017 (n=55) indicate a majority of alumni "Strongly Agree" or "Agree" with the statement "I was equipped with the ability to apply knowledge of mathematics, science, and legal principles." (100.0%).
    - Threshold of Acceptability – majority indicating "Strongly Agree" or "Agree"
    - Completion Rate – 100.0% of respondents indicated "Strongly Agree" or "Agree"
    - This meets the threshold of acceptability.

**Start:** 07/01/2017

**End:** 06/30/2018

**Threshold of Acceptability:** 80

**How many students did you assess for this outcome?:** 29

**How many students met the outcome?:** 26

**What percentage of students met the outcome?:** 90

Does this meet your threshold of acceptability?: Yes

## SLO 2 Critical thinking skills

### Outcome:

Define problems, formulate solutions, assess legal evidence, interpret statistical results, design a system or process and explain professional and ethical issues.

SLO Area (select one): Critical Thinking (UG)

### Assessment Method:

- Competency is assessed through the following:
  - specific coursework, including Quizzes 1-6 and Labs 3, 4, 8, 10-12 in SUR4430 *Surveying and Mapping Practice*; and Meeting Attendance Paper and Design Project Phases 1-6 in SUR4463 *Subdivision Design*;
  - and by survey of alumni regarding their self-assessment of preparation, last conducted in 2017.

### SLO Not Assessed This Year:

#### Results:

- Evaluation results are provided below:
  - On the specific assignments assessing this SLO, 89.7% of students (n=29) received a 70% or better on at least 80%.
    - Threshold of Acceptability – 70% of students receiving a grade of 70% or better on 80% of assignments
    - Completion Rate – 89.7%
    - This meets the threshold of acceptability.
  - Survey results collected in 2017 (n=55) indicate a majority of alumni “Strongly Agree” or “Agree” with the statements “I was equipped with the ability to analyze and interpret data.” (98.2%), “I was equipped with the ability to identify, formulate, and solve problems in the field.” (82.1%), “I was equipped with the ability to use and adapt technology in a creative manner for optimum productivity.” (94.7%), “I was equipped with the ability to work in an ethically and professionally acceptable manner.” (100.0%), and “I was equipped with the ability to design and implement projects.” (93.7%).
    - Threshold of Acceptability – majority indicating “Strongly Agree” or “Agree”
    - Completion Rate – 82.1% or better of responses to all survey questions relevant to this SLO indicate “Strongly Agree” or “Agree”
    - This meets the threshold of acceptability.

Start: 07/01/2017

End: 06/30/2018

Threshold of Acceptability: 80

How many students did you assess for this outcome?: 29

How many students met the outcome?: 26

What percentage of students met the outcome?: 90

Does this meet your threshold of acceptability?: Yes

## SLO 3 Communication

Outcome: Create, interpret and analyze written text, oral messages, and multimedia presentations.

SLO Area (select one): Communication (UG)

### Assessment Method:

- Competency is assessed through the following:
  - specific coursework, including Quizzes 1-6 and Labs 3, 4, 8, 10-12 in SUR4430 *Surveying and Mapping Practice*; and Meeting Attendance Paper and Design Project Phases 1-6 in SUR4463 *Subdivision Design*;
  - and by survey of alumni regarding their self-assessment of preparation, last conducted in 2017.

### SLO Not Assessed This Year:

#### Results:

- Evaluation results are provided below:
  - On the specific assignments assessing this SLO, 89.7% of students (n=29) received a 70% or better on at least 80%.
    - Threshold of Acceptability – 70% of students receiving a grade of 70% or better on 80% of assignments
    - Completion Rate – 89.7%
    - This meets the threshold of acceptability.
  - Survey results collected in 2017 (n=55) indicate a majority of alumni “Strongly Agree” or “Agree with the statement “I was equipped with the ability to communicate effectively.” (92.9%).
    - Threshold of Acceptability – majority indicating “Strongly Agree” or “Agree”
    - Completion Rate – 92.9% of respondents indicated “Strongly Agree” or “Agree”
    - This meets the threshold of acceptability.

Start: 07/01/2017

End: 06/30/2018

Threshold of Acceptability: 80

How many students did you assess for this outcome?: 29

How many students met the outcome?: 26

What percentage of students met the outcome?: 90

Does this meet your threshold of acceptability?: Yes

## BSGEM - Geomatics

**Program:** Geomatics (BSGEM)

### Programmatic Use of Results:

The School of Forest Resources & Conservation's Undergraduate Programs Committee reviewed feedback from specific course assignments and the alumni survey. These results have informed the continuing evolution of the curriculum, including revisions to SUR4912 *Senior Project*, changes to the computer hardware and software being used, and discussion of emphasis on oral and written communications skills in various courses. Based on our review it was decided that SLOs and PGs would remain the same.

**Program Results Not Reported This Year:**

## BS in Geomatics AAP Detail

**End:** 06/30/2018

**Start:** 07/01/2017

**Providing Department:** Geomatics (BSGEM)

### Assessment Cycle (All AAPs):

Results will be collected and a basic analysis conducted annually. A more comprehensive, strategic planning exercise based on assessment results will occur on a three-year cycle (indicated as XC in the table below).

## Assessment Cycle Chart

Assessment Cycle for:

Geomatics

College of Agricultural and Life Sciences

Analysis and Interpretation:

April – May of each year

Improvement Actions:

July – September of each year

Dissemination:

July 30 annually

Year	16-17	17-18	18-19	19-20	20-21	21-22
<b>SLOs</b>						
<b>Content Knowledge</b>						
#1	XC	X	X	XC	X	XC
<b>Critical Thinking</b>						
#2	XC	X	X	XC	X	XC
<b>Communication</b>						
#3	XC	X	X	XC	X	XC

**SLO Assessment Rubric (All AAPs):**

**Methods and Procedures (UG and Certificate AAPs):**

## SLO Assessment Matrix

2015-16 Student Learning Outcome	Assessment Method	Measurement Procedure
Knowledge and competency in geometry, statistics, boundary law, surveying and mapping instrument usage, and statutes and ordinances pertaining to professional practice.	Course assignments, alumni survey	Grades, survey results
Define problems, formulate solutions, assess legal evidence, interpret statistical results, design a system or process and explain professional and ethical issues.	Course assignments, alumni survey	Grades
Create, interpret and analyze written text, oral messages, and multimedia presentations.	Course assignments, alumni survey	Grades, survey results

Students working towards a Bachelor of Science in Geomatics (BS GEM) are required to take 16 core classes. We focused our SLO assessment on a set of five courses required for all GEM students. The following tools will be used to assess SLOs:

1. Specific assignments (quizzes, labs, homeworks, exams, projects, etc.) for each course indicated will be graded, and those grades collected and analyzed. See the detailed description of assessments utilized in *Curriculum Map*.
2. A survey of recent alumni (previous 10 years) will be conducted every three years, and feedback collected regarding how well prepared they were by the academic program for their professional career.

These data will be compiled as the students complete their program and compiled within an SLO report. All students' reports will be filed with the Education/Training Coordinator, a senior staff position within the School of Forest Resources & Conservation. Data will be analyzed from each report to determine an overall assessment of SLO achievement for the BS GEM degree at the completion of an academic year. Results will be interpreted over the summer in years 2014 and 2017 – noting improvements to instruction if SLO assessment scores trend negative.

Indirect assessment will be conducted using three methods: 1) during an existing “exit interview” conducted as students graduate, by the SFRC Director, during which students have the opportunity to discuss any curriculum deficiencies they have identified, opportunities to enhance the program, courses or instructors they found especially beneficial, and similar; 2) through informal monitoring of placement rates for graduates, as well as the type of positions graduates receive; and 3) through informal feedback on curriculum, and on the capabilities of graduates, from the SFRC Advisory Board, and in particular the Geomatics Advisory Council (both entities meet twice a year).

#### Curriculum Map (UG AAPs only):

Curriculum Map for:

Geomatics                      College of Agricultural and Life Sciences

Key: Introuced                      Reinforced                      Assessed

Courses	SUR 4430	SUR 4463	Additional Assessment
<b>SLOs</b>			
<b>Content Knowledge</b>			
#1	I, R A=Quizzes 1-6; Labs 3-4, 8, 10-12	R A=Meeting Attendance, Paper, Design Project Phases 1-6	A=survey results
<b>Critical Thinking</b>			
#2	R A=Quizzes 1-6; Labs 1-4, 8, 10-12	R A=Meeting Attendance, Paper, Design Project Phases 1-6	A=survey results
<b>Communication</b>			
#3	R A=Quizzes 1-4; Labs 1-4, 8, 11-12	R A=Meeting Attendance, Paper, Design Project Phases 1-6	A=survey results