

*The Land Surveying and Geomatics program (LSG) is committed to addressing the disparate and constantly changing needs of students - throughout Nevada and beyond - who are preparing for a geomatics career. Great Basin aims to deliver a high quality and relevant educational experience that prepares LSG students for professional success.*

# Nevada Association of Land Surveyors

## NALS 2017 – Reno Conference

### Advanced Education Report

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# **Program Goals and Objectives**

## **Land Surveying and Geomatics Program Goals**

1. Proficiently apply sound measurement methods, mathematics, science, and surveying tools to collect, analyze, and edit spatial information in professional applications.
2. Develop a sound background in the humanities, social sciences, and the arts, to function in multicultural and diverse environments.
3. Provide fundamentals in business management to enable graduates to understand business environments and decision-making processes.
4. Convey spatial information in graphical, textual, and verbal forms as an individual or as a collaborating member of a professional team.
5. Prepare to take and pass the Fundamentals of Land Surveying examination developed by the National Council of Examiners for Engineering and Surveying (NCEES).
6. Satisfy the educational requirements for licensure required by NRS.625.270 as a professional Land Surveyor in Nevada and recognize the benefit of life-long learning by participating in continuing education as students or as instructors.

## **Land Surveying and Geomatics Program Objectives**

Objectives to assist the Land Surveying and Geomatics program achieve stated goals include:

A) Evaluate and implement appropriate new teaching technologies for delivering high quality educational experiences to our remote students we are:

- I. Reviewing and applying new strategies in distance education that are relevant to our teaching environment.

B) Improve and advance the level of our expertise within the disciplines we cover. To achieve this goal we are:

- I. Reviewing, learning, and utilizing new techniques in our individual areas of expertise.
- II. Developing new classes or revamping older classes to meet the new industry standards as new technologies become accepted practice.

## **Fall 2016 Surveying/Geomatics Education Summary**

- 3/3 students passed the LSIT during the Fall 2016 semester
- One student passed the P.S. in Nevada
- One student failed the P.S. in New York State (retake spring 2017 semester) (100% pass rate on LSIT and 50% pass rate on the P.S.)
- MGT 441 Operational Quality Control and Problem Solving was replaced by CADD 421 Advanced CAD for Land Surveyors in the BAS LSG Applied Science Core beginning fall 2017 catalog
- 78 total students enrolled in SUR classes fall 2016 semester
- New text books for SUR 320, CADD 121, CADD 421 to be introduced spring 2017
- All drafting, GIS, and surveying related software is updated to 2017
- The development of a new one credit SUR 456 Advanced Mine Surveying course will begin spring 2017 based on the text by John O. Ogundare, titled *Precision Surveying: The Principles and Geomatics Practice*. First Edition. Wiley, 2015, (ISBN 978-1119102519)
- 2<sup>nd</sup> instructor recruitment and appointment for the LSG program is scheduled to begin fall 2017 pending the outcome of the 79th (2017) Session of the Nevada Legislature

## **Spring 2017 Surveying/Geomatics Education Summary**

- 2nd instructor officially requested by LSG department on Feb 27<sup>th</sup>
- 80 total students enrolled in SUR classes spring 2017 semester
- 90-120 students estimated to be enrolled in SUR classes for fall 2017
- All geomatics related software is updated to 2017

## Program Goals and Objectives: Fall 2017

Objectives to assist the Land Surveying and Geomatics program achieve stated goals include:

A) Improve and advance the level of expertise within the disciplines we cover. To achieve this goal, we will:

- I. Officially request that GBC adds a second instructor for fall 2017/spring 2018
- II. Request an ABET Readiness Review (RREv) by August 25, 2017
- III. Submit an ABET Preliminary Self-Study Report by September 25, 2017
- IV. Complete ABET Readiness Review by Oct 25, 2017
- V. Submit ABET Request for Evaluation by Jan 25, 2018

Interest in the GBC Land Surveying and Geomatics (LSG) program continues to grow. Estimated enrollment numbers are projected to be extremely strong for fall 2017. The program has requested that GBC add a second instructor.

A couple weeks ago I attended the NSPS conference in Washington, DC. During this period, I had the opportunity to discuss higher education with many different stakeholders within the profession. Here are the bullet points.

- Enrollment in geomatics related curriculum is down across the country
- GBC's LSG program has been identified as the NSPS educational model moving forward
- At least four large schools are currently moving their traditional program model online

Funding for higher education at the state level (including NV) is under intense scrutiny as financial resources are limited. Clearly, each school has the obligation (legislative directive) to cut and remove programs that underperform. Unfortunately, geomatic programs typically have low enrollments and even lower graduation rates. GBC has been fortunate to increase enrollment as the program was an early adopter of the online model. My concern is when the online model is deployed by larger colleges, our enrollment numbers will dip. To address the increased competition in the online segment, GBC must become ABET accredited.

The entire ABET process takes 18 months to complete, unless the petitioning school has not gone through an ABET review, then the process takes 30 months. Having personally gone through an ABET evaluation, I am confident our application will be accepted. In a typical program setting, all program instructors would begin aligning their assessments with program and course objectives, while also collecting and organizing the required materials needed for the review. This aspect of the ABET process is the most time consuming; I estimate 90% of the work is dedicated to this

portion of the application.

<http://www.abet.org/accreditation/get-accredited-2/get-accredited-step-by-step/>

To gain ABET accreditation, the LSG program needs a second full-time instructor. I have officially requested we add a second instructor to begin either Fall 2017 or Spring 2018. This of course is contingent on the outcome of the 79th (2017) Session of the Nevada Legislature.

As of today, 80% of all students in all LSG related classes are earning a 70% or higher. These statistics meet all program assessment outcomes that I implemented last year for each class.

As more schools gravitate towards, and build upon the online model that Great Basin College developed in 2009 (NSPS has officially recognized GBC as the model of the future), educational opportunities for the surveying student will expand. The LSG program recognizes it will need to partner with UNLV to maintain a virtual presence as better known, better funded, more prestigious, and larger universities begin to compete in the geomatics online segment.

## **Spring 2017: New Course Updates**

### **GBC SUR 320 – GIS for Surveyors**

GBC's Land Surveying/Geomatics department is pleased to announce that our new SUR 320 – GIS for Surveyors will be offered in spring 2017.

SUR 320 – GIS for Surveyors curriculum focuses on a variety of tools for editing the data to create new or derived polygons from the parent, adding the record data for lines, and correcting or adding attribution and labeling. The editing tools include working in true bearings or grid bearings, and computing closures with acreage. The parcel fabric allows the land surveying student to work in various units such as feet, chains, links, meters, etc.; the ability to traverse metes and bounds (bearings and distances); and create new polygon parcels, that can rest on top, store to history, or replace existing parcels.

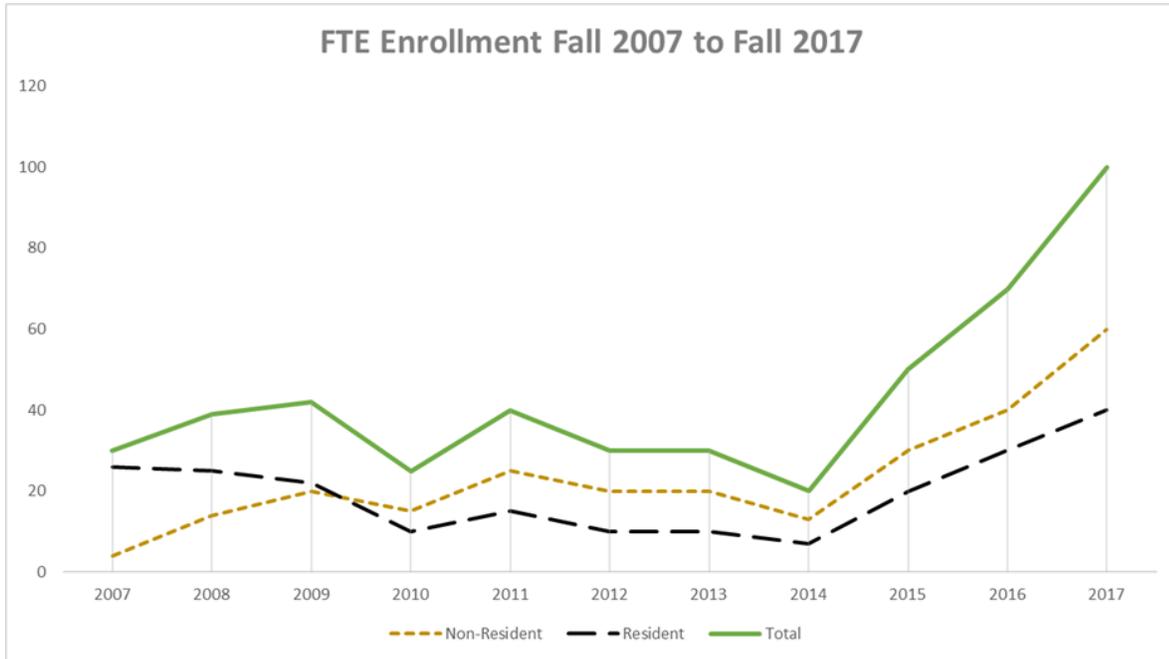
### **GBC CADD 421 – Advanced CAD for Land Surveyors**

GBC's Land Surveying/Geomatics department is pleased to announce that CADD 421 – Advanced CAD for Land Surveyors will be offered in spring 2017 as the follow up class to CADD 121 – CAD for Land Surveyors and will replace MGT 441 (from the Applied Science Core).

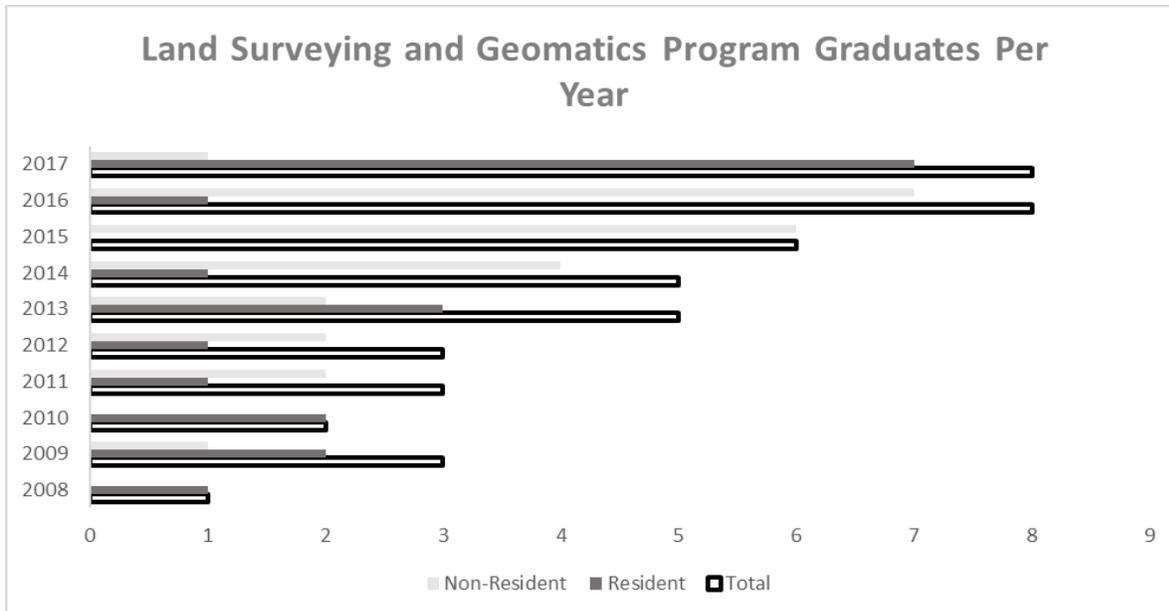
Students in CADD 421 will use computer-aided drafting (CAD) software to create survey plats and topographic maps. Instruction will focus on learning COGO tools, the Command Prompt, use of deed data to create a deed file, perform deed correlation with field data, create and edit lots and areas and generate lots and setbacks, setup Field to Finish codes, generate 2D and 3D geometry, utilize point history, use special linetypes for map creation, execute advanced AutoCad commands to create survey drawings, and setup Field to Finish codes.

## GBC SUR 255 – Introduction to Mine Surveying

GBC’s Land Surveying/Geomatics department is pleased to announce that the LSG department will again offer “Introduction to Mine Surveying” in spring 2017. The impetus of the new surveying course is to demonstrate that the LSG program is motivated to add curriculum that aligns with professional jobs in Nevada.



This chart illustrates Nevada Resident and Non-Resident enrollment is trending in an upward direction  
 \*2017 Fall enrollment estimated



\*N = 42 Total Degrees, BAS Degrees = 34, AS Degrees = 8  
 \*N assumes all students eligible for degrees will graduate spring 2017