

Table 1. Student Outcomes

Course Name: SUR3103C - Geomatics

Program Student Outcomes	General Criteria											
	a	b	c	d	e	f	g	h	i	j	k	
Student will understand significant figures, precision, and accuracy; Assessed in Quiz 1 and Homework 1	76/82											76/82
Student will learn how to make differential leveling measurements and compute adjusted elevations; Assessed in Quiz 1 and Lab 2	82/90	82/90			82/90							82/90
Student will learn how to make distance and angle measurements, and compute bearings and azimuths; Assessed in Quiz 2, Homework 2, and Labs 3-5	86/86	86/86			86/86							86/86
Student will learn how to balance angles and adjust a traverse by the Compass Rule; Assessed in Quiz 3, Lab 7, and Homework 3	76/85	76/85			76/85							76/85
Student will learn how to compute area of a land parcel; Assessed in Quiz 3 and Homework 4	68/87											68/87
Student will learn how to produce a large-scale topographic map – includes field data collection and map drafting using CAD; Assessed in Labs 9-12	95/89	95/89	95/89		95/89		95/89					95/89

Course Name: SUR3323 – Visualization of Spatial Information

Program Student Outcomes	General Criteria											
	a	b	c	d	e	f	g	h	i	j	k	
Student will be able to understand the basic and intermediate 2D AutoCAD functions while creating a simple subdivision map; Assessed in homework projects 1-8.	-/86				-/86		-/86					-/86
Student will be able to utilize and apply Florida’s Minimum Technical Standards to a survey; Assessed in homework project 9.	-/82		-/82		-/82		-/82					-/82
Student will be able to operate the 3D functions (Surface and Solid Modeling) in AutoCAD; Assessed in homework projects 10 & 11.	-/78	-/78			-/78		-/78					-/78
Student will be able to navigate the basic and intermediate commands of AutoCAD Civil 3D as applied to surveying; Assessed in homework projects 12 & 13.	-/75	-/75			-/75		-/75					-/75
Student will be able to draft a complete boundary survey to minimum technical standards; Assessed in homework project 14.	-/83	-/83	-/83		-/83		-/83		-/83			-/83

Course Name: SUR3331/3331L – Photogrammetry

Program Student Outcomes	General Criteria											
	a	b	c	d	e	f	g	h	i	j	k	
Student will learn how to apply correct number of significant figures in measurements and equations. Assessed in Lab 1.	66/64	66/64			66/64							66/64
Student will learn vertical aerial photo geometry – determine scale and flying height. Assessed in Lab 5.	81/85	81/85			81/85							81/85
Student will learn vertical aerial photo geometry – determine object height using parallax measurement. Assessed in Lab 8.	87/76	87/76			87/76							87/76
Student will learn how to perform Softcopy stereoplotter orientation and measurement. Assessed in Lab 11-12.	86/83	86/83			86/83							86/83
Student will learn how to apply principles of flight planning. Assessed in Assignment 5.	96/89	96/89			96/89							96/89
Student will learn how to perform basic analysis of close range photos. Assessed in Lab 14-15.	99/74				99/74							

Course Name: SUR3501/3501L – Spatial Measurement Systems

Program Student Outcomes	General Criteria											
	a	b	c	d	e	f	g	h	i	j	k	
Student will learn how to determine quality of spatial data; Projects 1-12	91/86	91/86										91/86
Student will learn how to determine error budgets for measurement systems; Projects 2-3, 5-8, 10	90/88	90/88										90/88
Student will learn how to measure with a variety of systems/devices; Projects 1-3, 5-8		83/88										83/88
Student will learn analysis of measurements; Projects 1-10	83/88	83/88										83/88
Student will learn how to produce a written project report; Projects 1-12								91/88				91/88

Course Name: SUR3520 – Measurement Science

Program Student Outcomes	General Criteria											
	a	b	c	d	e	f	g	h	i	j	k	
Student will understand fundamental statistical measures. Assessed in home Assignment 1.	89/86											89/86
Student will learn how to apply statistical testing to geodetic measurements. Assessed in home Assignment 2.	80/67	80/67			80/67							80/67
Student will learn how to apply the law of error propagation. Assessed in home Assignment 3.	93/78	93/78										93/78
Student will learn how to perform Least Squares adjustment using spread sheet function. Assessed in Assignment 6.	95/83	95/83										95/83
Student will learn how to compile a project report. Assessed in field lab.							-*/80					

* field lab was not part of the class in 2008/2009

Course Name: SUR3641 – Survey Computations

Program Student Outcomes	General Criteria										
	a	b	c	d	e	f	g	h	i	j	k
Student will learn how to use spreadsheets to solve surveying computation problems; Assessed in Assignments 1-7	85/82	85/82	85/82		85/82						85/82
Student will learn how to utilize calculus, geometry and trigonometry in surveying problems; Assessed in Assignments 1-2, Quiz 1, and Exam 1	87/82				87/82						87/82
Student will learn how to perform coordinate geometry computations; Assessed in Assignments 3-4, Quiz 2, and Exam 1	82/85				82/85						82/85
Student will learn how to perform area calculations and partitioning; Assessed in Assignment 5, Quiz 3, and Exam 2	82/70				82/70						82/70
Student will learn how to apply matrix algebra and partial derivatives in error propagation and coordinate transformation; Assessed in Assignments 6-7, Quiz 4, and Exam 2	78/80				78/80						78/80

Course Name: SUR4201 – Route Geometrics and Design

Program Student Outcomes	General Criteria										
	a	b	c	d	e	f	g	h	i	j	k
Student will understand how to perform horizontal route design and calculation. Assessed in Assignment 2.	86/53		86/53								86/53
Student will understand how to perform vertical route design and calculation using Excel spreadsheet. Assessed in Assignment 3.	86/84		86/84								86/84
Student will understand how to design cross sections and perform volume calculation and analysis. Assessed in Assignment 4.	92/50		92/50								92/50
Student will understand how to design and calculate route superelevation. Assessed in Assignment 6.	82/75		82/75								82/75
Student will understand how to design roads according to AASHTO geometric standards. Assessed in Assignment 8.	97/82		97/82			97/82					97/82

Course Name: SUR4350C – Advanced Photogrammetry

Program Student Outcomes	General Criteria										
	a	b	c	d	e	f	g	h	i	j	k
Student will learn how to analyze results of coordinate transformations; Assessed in Lab 3	87/74	87/74			87/74						87/74
Student will learn how to make precise photo coordinate measurements and compute space resection; Assessed in Lab 4	82/94	82/94			82/94						82/94
Student will learn how to produce a topographic map using a softcopy stereoplotter; Assessed in Lab 5-6	92/82		92/82		92/82		92/82				92/82
Student will learn how to measure image points and solve a simultaneous bundle adjustment; Assessed in Lab 9-10	90/87	90/87	90/87		90/87						90/87
Student will learn how to measure image points and solve a self-calibrating, close-range bundle adjustment; Assessed in Lab 11-12	90/86	90/86	90/86		90/86						90/86
Student will learn how to use a softcopy stereoplotter to produce a digital terrain model and orthophoto; Assessed in Lab 13-14	89/75		89/75		89/75						89/75

Course Name: SUR4380 – Remote Sensing

Program Student Outcomes	General Criteria										
	a	b	c	d	e	f	g	h	i	j	k
Student will be able to apply principles of remote sensing. This outcome will be assessed by a Final Project paper and Presentation	90/90						90/90				90/90
Student will have an understanding of electromagnetic radiation concepts. This outcome will be assessed by laboratory exercise #1 and two class assignments on thermal infrared.	95/96										95/96
Student will be familiar with remote sensing instrumentation. This outcome will be assessed by laboratory exercises #4, #5, and #6.		94/94								94/94	94/94
Student will be able to perform image processing operations. This outcome will be assessed by laboratory exercises #2-8.		89/90									89/90
Student will be able to perform ground truthing operations. This outcome will be assessed by laboratory exercise #8	86/90	86/90			86/90						86/90
Student will be able to perform a supervised maximum likelihood classification of ground cover types using appropriate software. This outcome will be assessed by laboratory exercise #7	95/98	95/98	95/98		95/98						95/98
Student will be able to integrate raster-based remote sensing information into Geographic Information Systems. This outcome will be accessed by laboratory exercise #8.		86/89			86/89						86/89

Course Name: SUR4912 – Senior Project

Program Student Outcomes	General Criteria										
	a	b	c	d	e	f	g	h	i	j	k
Student will be able to learn additional topic(s) beyond standard curriculum through design and execution of an experiment, Students will do this by doing a project they design, execute and present in both an oral and written form.		80/85								80/85	
Student will be learn literature review concepts by preparing a literature review		70/80					70/80				
Student will learn about proper citations and plagiarism through the preparation of a final paper.						75/80	75/80				
Student will learn how to organize a scientific paper through preparation of a paper in the format of a peer-reviewed scientific journal article. Students will do this by working one-on-one with an expert on the topic of the research project.			75/80				75/80				
Student will learn how to write manuscripts and drafts by preparing them and having them critiqued by the faculty. Students will do this by having their final written paper available for the Geomatics faculty to review.							75/80				75/80
Student will be able to prepare a Powerpoint™ presentation which is required for the final project presentation.							85/90				85/90
Student will be able to prepare an oral presentation which is required for the Senior Project							85/90				85/90