



Syllabus

Course code:	ICYA-1125
Period:	First Semester 2017 (January 23 – May 13)
Schedule:	Tuesday & Thursday 05:00 – 06:20 pm Classroom B-401 05:00 – 06:20 pm Classroom B-401
Teacher:	Daniel Páez Office: ML744 Email: dpaez@uniandes.edu.co Cellphone/WhatsApp: (314-482-9263) Skype: danielpaezbarajas

Course objectives

At the end of the course, the student will understand and will be able to apply all the principles of measurement of land and spatial analysis techniques. In addition, it is expected that the student will develop an individual approach and use that as the best tool for data gathering, analysis and presentation. The final purpose of this is to understand the land administration system to make decisions based on a technical, legal and professional framework.

Specific Goals

- Generate a vision of geomatics and its application in everyday life. (ABET goal C & E)
- Use tools for data gathering, analysis and presentation in order to understand the world functioning. (ABET goal K)
- Propose practical solutions for daily problems and represent information through specialized software in spatial analysis. (ABET goal C & E)
- Use Geographic Information Systems (GIS) to represent data and solve problems, using different specialized software in spatial analysis. (ABET goal A & B)
- Use techniques to determine the location by coordinates and use it for georeferencing any spot worldwide. (ABET goal K)
- Understand the fundamental principles (using instruments for measurement error with the proper technique) to develop spatial quality analysis. (ABET goal A & B)
- Identify constraints and opportunities for action within the legal framework of Colombia. (ABET goal E & G).

Methodology

- **Problem solving** is the foundation of this course. For this reason, the methodology of the classes is a brief presentation of the theory and the solution of applied exercises.
- Problem solving requires the student to meet the theoretical and conceptual basis required for their understanding. Therefore, **it is the student's responsibility to glance through the topics assigned prior** to each of the classes according to schedule.

Course Schedule

Below, the course schedule is presented:

WEEK	DATE	TOPIC	BOOK CHAPTER	LABORATORY OR PRACTICE
1	JANUARY	24	Course Introduction	1. From Cadastre to Land Governance Introduction and groups creation
		26	Cadastre and Land use	
2		31	Lecture 1	2. Historia Catastro en Colombia (p. 15-22, 63-89). Practice No.1: SketchUp Non presential practice
		2	Lecture 2	
3		7	Discussion 1	3. Land Administration Practice No. 2: Cadastre Non presential practice
		9	Ian Harper lecture	
4	FEBRUARY	14	Discussion 2	4. Una aproximación al catastro en colombia** PRACTICE NO. 2 PRESENTATION Classroom assigned by banner
		16	Inv 2	
5		21	Exam No. 1 - During class	
		23	Levelling: Basic concepts	Topography Book Chapter No.1 & No.2 Practice No.3: Levelling Geomatics Laboratory
6	28	Levelling: Field procedure for levelling and error calculation	Practice No.4: Polygon Transverse with Total Station	

		2	Angle measurement		Geomatics Laboratory
7	MARCH	7	Distance measurement: taping	Topography Book Chapter No.3 & No.4	No laboratory
		9	Polygonal Introduction	Topography Book Chapter No.4 & No.6	No laboratory
8		14	Total Stations		
		16	Links transverse		
9		21	Intersection and resection	Topography Book Chapter No.9	No laboratory
		23	Measurements, errors and specifications		
10		28	GPS introduction		
	30	GNSS in engineering surveying & differential and relative GPS		PRACTICE NO. 5 PRESENTATION Classroom assigned by banner	
11	APRIL	4	Exam No. 2 - During class		
		6	(Practical and Theoretical)		
12		11	Rest week		
		13	Rest week		
13		18	GIS introduction	GIS Book chapter's No.1, 2 & 3	Practice No.6: GIS Vector
	20	GIS - Coordinates system	Geomatics Laboratory		
14	25	GIS - Spatial Analysis	GIS Book chapter's No.8 & 9	PRACTICE NO. 6 PRESENTATION	
	27	GIS - Cartography and maps		Classroom assigned by banner	
15	MAY	2	GIS - Hydrology & DTM	GIS Book chapter's No.9 & 11	Practice No.7: GIS Raster
		4	Geomatics Championship		Geomatics Laboratory
16		9			PRACTICE NO. 7 PRESENTATION Classroom assigned by banner
	11	Feedback		Simulator	
Date of Final Exam - Banner		Final Exman - Schedule assigned by Banner			
<p>** All of the lectures area available in SicuaPLUS or you can acquire them in Copialina stationery shop.</p> <p>Topography and GIS books are available in Ramón de Zubiria Main Library (Mario Laserna building).</p>					

Bibliography

1. **Topography:** Surveying for engineers, Fifth Edition, Editorial Palgrave Macmillan
2. **GIS:** GIS Fundamentals: A first text on Geographic Information Systems, Paul Bolstad, 4th Edition

Important Notes:

According to the student's regulations of the university, the students must consider the following instructions that will be used for the development and evaluation of the course:

- 1) The students must be responsible with the punctuality of the course, in case of delay or absence, the student should notify the teacher. In any case, it should be noted that:
 - a. It is not allowed to be late for the class without a valid excuse according to the student regulations. The classroom door will be closed at the beginning of the lesson and the students who arrive late will only enter 15 minutes after the start of the lesson.
 - b. When a student arrives late to a lab session, he/she will have the following penalty in his note:
 - i. **From 0 to 5 minutes the practice will be scored over 4.**
 - ii. **From 5 to 10 minutes the practice will be scored over 3.**
 - iii. **After 10 minutes, the practice will not be scored and the score will be 0.**
- 2) It is the responsibility of the teacher and course developers to deliver the scores within ten (10) business days following the practice of partial evaluation.
- 3) Any student, who wishes to make a complaint about the grade of any assignment or the final grade for the course, must do so within eight (8) business days from the date that the corresponding score were disclosed.
- 4) The students must prepare the lesson before class.
- 5) The final score of the practice consists of a group grade (report and presentation) and an individual grade. **An individual form must be delivered the same day of the presentation of the practice, (before 23:59 p.m.).** Each student will evaluate the performance of his or her group members in the practice completing the following form (<http://goo.gl/forms/0I9IkVjWVj>). **Any student who doesn't complete the form will have 0 in his individual score of the practice, which represents 15% of the total score of the practice.**
- 6) The score of each practice will be evaluated (in percentage) in the following terms:
 - a. Presentation: 15%
 - b. Average score given by his group: 15%
 - c. Report, complements of the report and video: 70%

Evaluation criteria

- | | |
|------------------------|-----|
| ○ Test 1 | 15% |
| ○ Test 2 | 15% |
| ○ Final Exam | 25% |
| ○ Laboratory Practices | 35% |

- Quizzes 10%.

Laboratories

The laboratories are the practical reinforcement of the lecture and will be composed of:

- A class where the students will make the practical component of the subject.
- A class where the students will present their results and where the course developers will solve any questions about the practice.

The practice must be presented in hard copy and be uploaded to SICUA (2 hours prior the start of the laboratory section). The student who presents the project will be selected randomly and the score of that person will be the score of the whole group. Some additional rules are:

1. **No** work will be accepted after deadline.
2. **No** work will be accepted with a different format from the one provided by the teacher.
3. **No** work will be accepted if it is incomplete or does not open – It is the responsibility of the student to check this.

Course Coordinators

- Lina María González Bernal (lm.gonzalez2483@uniandes.edu.co) Available at the ML 126 with appointment.
- Federico Vélez (f.velez1010@uniandes.edu.co) Available at the ML 126 with appointment.

Course developer (teacher's assistants):

Below, you will find the names of the course developers in case you have any questions about the course or the subject:

Assistant	Lab section	Day	Hours	Classroom	e-mail	Attention Hours
Gustavo Bernal (EN)	1	L	14:00 - 16:50 h	Sd 201	ga.bernal10	V 10:30 - 11:30
Lina Robles	2	I	14:00 - 16:50 h	Sd 201	lt.cardenas10	I 8:00 - 9:30 h
Maria Paula Rincon	6	V	06:30 - 09:30 h	Sd 201	lg.robles10	J 8:00 - 9:00 h
Lina Cárdenas	7	V	09:30 - 12:30 h	Sd 201	mp.rincon10	I 14:00 - 15:00
Pedro Escobar	3	V	14:00 - 16:50 h	Sd 201	p.escobar10	L 14:30 - 15:30 h

*Teacher's assistants at English section.