

INSTRUMENTAL ANALYSIS I 2016-2017

Bachelor Degree:	Chemistry	702G
Course title:	Instrumental Analysis I	540
Year/Semester:	3/1	ECTS Credits: 6

DEPARTMENT

Chemistry					
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CONTENTS

UNIT 1. Introduction to instrumental analysis.
 UNIT 2. Introduction to electroanalytical techniques.
 UNIT 3. Potentiometry: selective electrodes.
 UNIT 4. Voltammetry and stripping techniques.
 UNIT 5. Other electroanalytical techniques.
 UNIT 6. Introduction to optical techniques.
 UNIT 7. UV-Vis Molecular absorption spectroscopy: expansion.
 UNIT 8. Molecular luminescence.
 UNIT 9. IR and Raman spectroscopy.
 UNIT 10. Atomic absorption spectroscopy.
 UNIT 11. Atomic emission spectroscopy.
 UNIT 10. Other optical techniques.

Practice 1. Determination of fluoride in toothpaste using an ion-selective electrode.
 Practice 2. Determination of vitamin C (ascorbic acid) in orange juice by voltammetry.
 Practice 3. Determination of manganese by UV-VIS molecular absorption spectrometry after oxidation to permanganate.
 Analytical characteristics study.
 Practice 4. Determination of quinine by molecular fluorescence.
 Practice 5. Calcium determination in milk powder by flame-atomic absorption spectroscopy. Microwave digestion.
 Sesion 6. Practice exam.

REFERENCES**Title**

D.A. Skoog, F. J. Holler y S.R. Crouch . Principles of Instrumental Analysis. Sixth Ed. Thompson, 2007.

D.C. Harris y C.A. Lucy. Quantitative Chemical Analysis. Ninth edition. W.H. Freeman and Company, 2016.

E. Pungor. A Practical Guide to Instrumental Analysis. CRC press, 1995

EVALUATION SYSTEM

Practice reports (20 %)

Works and projects (5 %)

Tests on-line and short exam (5 %)

Attendance and participation (7 %)

Written final exam (55 %)

Laboratory practice final exam (8 %)

Critical criteria to pass the course:

Compulsory attendance at practices

To have in the written final exam at least 4 points out of 10

To have in the laboratory practice final exam at least 3 points out of 10