

ACADEMIC YEAR: **2019-2020**COURSE:: **CHIMICA ANALITICA**TYPE OF EDUCATIONAL ACTIVITY: **Fundamental**TEACHER: Prof. Dr. **Antonio Guerrieri**e-mail: **antonio.guerrieri@unibas.it**

Web site:

<http://docenti.unibas.it/site/home/docente.html?m=000966>phone: **0971/205460**

mobile:

Language: **ITALIANO**

ETCS: 12 (8 lessons /4 practical lab activities)	n. of hours: 112 (64 for lessons and 48 for practical lab activities)	Campus: Potenza Dept/School: Dipartimento di Scienze CdS: Laurea in Biotecnologie (L2)	Semester: annual (tentatively from 1/10/2019 to 31/05/2020-20/06/2020)
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EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES

- **Knowledge and understanding:** the student should demonstrate to know and understand the fundamental notions of analytical chemistry and the fundamental knowledge on the most common analytical instrumentation.
- **Ability to apply knowledge and understanding:** the student should demonstrate to be able to face the most common analytical problems as well as the use of the most common analytical instrumentation.
- **Autonomy of judgment:** the student should demonstrate to be able to make an independent judgment using the basic knowledge learned from the subject.
- **Communication skills:** the student should have the ability to summarize and explain using the terminology of the subject.
- **Learning skills:** the student should be able to understand publications and follow in-depth courses, specialized seminars and masters.

PRE-REQUIREMENTS

- attendance of lectures: **HIGLY** suggested
- attendance of lab activities: **COMPULSORY**
- preparatory exams: Istituzioni di Matematica, Fisica, Chimica generale e inorganica

SYLLABUS

Analytical Chemistry: an introduction.

Statistical data treatment and processing.

Equilibria in aqueous solutions for acids, bases, salts and buffers.

Titrations.

Electrochemical reactions and equilibria.

Potentiometry. pHmeters. Ion selective electrodes.

Spectroscopy. Emission. Absorption. Fluorescence.

Instrumentation in spectroscopy.

Lab activities

- The analytical approaches in lab
- Titration of HCl
- Titration of NaOH
- Determination of acetic acid in commercial vinegars by titration
- Deyermination of citric acid in lemon juices by titration
- The pH meter
- Potentiometric titrations

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- Spectrophotometry with Lambert Beer applications to cytochrome c determination

TEACHING METHODS

- The course includes 112 hours of teaching between lessons and laboratory. In particular, 64 hours of classroom lessons and 48 hours of laboratory exercises are planned.

EVALUATION METHODS

- Final oral exam to ascertain the actual acquisition by the student of the knowledge and skills described in the section " EDUCATIONAL GOALS AND EXPECTED LEARNING OUTCOMES " and discussion of reports on laboratory exercises.
- The final evaluation will be expressed with a mark of thirty and possible praise.

TEXTBOOKS AND ON-LINE EDUCATIONAL MATERIALS

- **lecture notes; lesson slides; lab activity notes**
- **Suggested Textbooks**

Title:Fondamenti di chimica analitica

Authors:Skoog Douglas A.,West Donald M.,Holler James F.

Editor:Edises

Publication date:1998

ISBN:887959138X

ISBN-13:9788879591386

- **Title:**Chimica analitica strumentale
 - **Authors:**Skoog Douglas A.,West Donald M.
 - **Editor:**Edises
 - **Publication Date:**1995
 - **ISBN:**8879590669
 - **ISBN-13:**9788879590662
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INTERACTION WITH STUDENT

Conventional approaches (e.g. student welcome) as well as internet ones (e.g. email) for discussions and deepening of lectures and lab activities .

TIMETABLE FOR STUDENT WELCOME

<i>DAY</i>	<i>FROM</i>	<i>TO</i>	<i>LOCATION</i>
MONDAY	17.30	20.30	Professor Office
TUESDAY	17.30	20.30	Professor Office
WEDSNEDAY	18.00	20.30	Professor Office
THURSDAY	15.00	18.00	Professor Office

CALLS FOR EXAMINATION (exact dates to be defined)¹

Month	Year	Expected call
February	2020	18
March	2020	17
June	2020	23
July	2020	14
September	2020	22
October	2020	20
December	2020	15

EXAMINATION PANEL:

President: **prof. dr. Antonio Guerrieri**

Member: **prof.ssa Anna Maria Salvi**

Member: **dr.ssa Rosanna Ciriello**

Member: **dr.ssa Giuliana Bianco**

Member: **dr. Fausto Langerame**

SEMINARS BY EXTERNAL EXPERTS YES NO

ALTRE INFORMAZIONI
