Code: **QO 623**

Name: **Química Orgânica Experimental**

Name in English: **Organic Chemistry Laboratory**

Name in Spanish: **Química Orgánica Experimental**

Subject type: **Weekly**

Approval Type: **Grade and Attendance**

Characteristic: **Regular Classes**

Frequency: **75% minimum**

Period Type / Offering period: **Semester / 1st Period - odd periods**

Requires Final Exam: **Yes**

Vectors

T	L	P	O	PE	OE	SL	WEEKS	CREDITS
2	**4**	**-**	**-**	**-**	**-**	**6**	**15**	**6**

Occurrence on curriculum: **63**

Pre-requirement: **QO321**

Summary: Experiments encompassing acid-base extraction, isolation of natural products, preparation of organic compounds and pharmaceuticals, basic knowledge of isolation, purification, and characterization of synthetic products by spectroscopic methods such as infrared, ultraviolet, nuclear magnetic resonance and mass spectrometry. Chromatographic methods. Principles of organic analysis (spot tests). Organic synthesis and natural product projects.

Program:

- Presentation of the discipline: assessment, activity calendar, laboratory safety, team formation and available glassware in the laboratory.
- Separation of a complex mixture (extraction and thin layer chromatography - TLC).
- Synthesis of an analgesic (paracetamol), recrystallization, thin layer chromatography (TLC).
- Extraction of an essential oil (limonene) by steam distillation, gas chromatography and infrared spectroscopy.
- Organic analysis: melting and boiling points, sodium fusion tests and characterization of functional groups and analysis of an unknown samples.
- Electrophilic aromatic substitution (nitration): separation of products by column chromatography.
- Synthesis of a lactone, its purification and chromatographic and spectroscopic analysis.
- Extraction and synthesis of some specific drugs (analgesic and antitussive), and chromatographic and spectroscopic analysis.
- Separation of enantiomers by chemical resolution and chromatographic analysis.
- Introduction to infrared and nuclear magnetic resonance (NMR) spectroscopy.

Basic Bibliography

1) PAVIA, D. L.; LAMPMAN, G. M.; KRIZ, G. S; ENGEL R. G. **Introduction to Organic Laboratory Techniques**, 3a ed., Saunders, Philadelphia, 1999.
2) PAVIA, D. L.; LAMPMANN, G. M.; KRIZ, G. S. **Introduction to Organic Laboratory Techniques, A Contemporary Approach**, 2a ed., Saunders, Philadelphia, 1982.
3) VOGEL, A. I. **Textbook of Practical Organic Chemistry**, 5a ed., Longman, London, 1989.
4) SOLOMONS, T. W. G.; FRYHLE, C. B. **Organic Chemistry**, 7a ed. John Wiley & Sons, New York, 2000.
5) CAREY, F. A. **Organic Chemistry**, 3a ed., McGraw-Hill, New York ,1996.

PAVIA, D. L.; KRIZ, G. S.; ENGEL, R. G. **Introduction to Spectroscopy**, 2a ed., Saunders, Philadelphia, 1996.

Supplementary Bibliography

As necessary. Should be provided by the instructors.