Code: **QG102**

Name: **Química Experimental I**

Name in English: **Experimental Chemistry I**

Name in Spanish: **Química Experimental I**

Subject type: **Weekly**

Approval Type: **Grade and frequency**

Characteristic: **Regular**

Frequency: **75%**

Period Type / Offering period: **Semestral/all the periods**

Requires Final Exam: **yes**

Vectors

T	L	P	O	PE	OE	SL	WEEKS	CREDITS
1	**3**	**-**	**-**	**-**	**-**	**4**	**15**	**4**

Occurrence on curriculum: **04, 08, 12**

Pre requirement: None

Summary: Experiments illustrating the scientific method, concepts of mol and chemical bond, oxidation-reduction, chemical equilibrium, pH, solubility product, preparation, and purification of substances.

Program:

Introduction. Laboratory Safety. - Physical and chemical phenomena. - Determination of the metal equivalent. - Quantitative study of the reaction of a metal with acid. - Continuous variations method. - Determination of the molecular mass of a volatile liquid by measuring density. - Melting point of a pure substance. - Illustrative reactions of chemical equilibrium. - Determination of the solubility product of silver acetate. - pH measurements. - Chemical equilibrium. - Oxidation-reduction potential. - Titration.

Basic Bibliography

1) KOTZ, J. C.; TREICHEL JR., P. **Química e Reações Químicas**, vol. 1 e 2, 4ª ed., LTC, Rio de Janeiro, 2002.
2) ATKINS, P. W.; JONES, L.; LAVERMAN, L. **Princípios de Química,** 7ª ed., Bookman, Porto Alegre, 2018.
3) FLOWERS, P.; ROBINSON, W. R.; LANGLEY, R.; THEOPOLD, K. **Chemistry**, OpenStax, Houston, 2015 (e-book disponível em: https://openstax.org/books/chemistry/pages/1-introduction).

Supplementary Bibliography

1) BACCAN, N.; GODINHO, O. E. S.; ALEIXO, L. M.; STEIN, E. **Introdução à Semimicroanálise Qualitativa**, Editora da UNICAMP, Campinas, 1990.
2) VOGEL, A. I. **Química Analítica Qualitativa**, Editora Mestre Jou, São Paulo, 1981.
3) VOGEL, A. I. **Análise Química Quantitativa**, 6ª ed., Editora LTC, Rio de Janeiro, 2002.
4) PAVIA, D. L.; LAPMAN, G. M.; KRIZ, G. S.; ENGEL, R. G. **Introduction to Organic Laboratory Techniques: a Microscale Approach**, 4th ed., Thomson Brooks/Cole, Belmont, 2007.
5) CHEMKEYS, disponível em www.chemkeys.com, e-ISSN 2595-7430.