



PROGRAMS AND BIBLIOGRAPHY

Subject	
Code	Name
QG565	Experimental Organic and Inorganic Chemistry

Vector
OF:S-1 T:000 P:002 L:008 O:002 D:000 HS:012 SL:008 C:012 AV:N EX:S FM:75%

Pre requirement
QG109 QI246 QO521/QI145 QO521/QA481 QG464 QO521

Summary
Study of strategies for the synthesis, purification and characterization of organic and inorganic substances, showing the shift of the equilibrium of reactions through the removal of products or by-products, or the precipitation of the same; the use of inert atmosphere; purification by distillation, crystallization, sublimation or column chromatography; the characterization by infrared spectroscopy, nuclear magnetic resonance spectroscopy, melting point, mass spectrometry and gas chromatography. Articulation of theoretical and practical concepts, computer resources and other media for the elaboration of teaching proposal for oral and written presentation.

Program
-Caption of O ₂ by a cobalt complex and synthesis of BINOL with emphasis on crystallization and melting point techniques. Synthesis of PCC and PCC / alumina followed by oxidation of alcohols with both reagents with emphasis on extraction techniques, drying agents and liquid column chromatography. -Preparation of cyclohexene and addition of dichlorocarbene to cyclohexene with emphasis on simple distillation, vacuum and gas chromatography techniques in conjunction with mass spectrometry. -Preparation of ferrocene and ferrocene acetylation with emphasis on infrared spectroscopy and sublimation techniques. Synthesis of triphenylmethanol and its derivatization with emphasis on ¹³ C and ¹ H nuclear magnetic resonance techniques. Synthesis of 2-acetylcyclohexanone and the [Cr(acac) ₃] complex with emphasis on fractional distillation and azeotrope technique. Enamine hydrolysis and purification of 2-acetylcyclohexanone. -Preparation of the chromium (III) acetylacetonate complex with an emphasis on the refractive index technique. -General Chemistry classes to be taught by the students in two moments of the course.

Bibliography
1. R. G. Engel, G. S. Kriz, G. M. Lampman, D. L. Pavia. "Química Orgânica Experimental". 3a ed. Cengage Learning, São Paulo, 2013.

2. R. G. Engel; G. S. Krig; G. M. Lampman; D. L. Pavia; "Introduction to Organic Laboratory Techniques - A Small Scale Approach"; Cengage Learning : United States, 2011.
3. D. L. Pavia, G. M. Lampman, G. S. Kriz, Jr., Introduction to Organic Laboratory Techniques, a Contemporary Approach, Saunders, Philadelphia, 2nd ed., 1982.
4. D. L. Pavia, G. M. Lampman, G. S. Kriz, Jr., R.G. Engel, Introduction to Organic Laboratory Techniques, a Microscale Approach, Saunders, Philadelphia, 3rd ed., 1999.
5. Z. Szafran, R. M. Pike, M. M. Singh, Microscale Inorganic Chemistry: A Comprehensive Laboratory Experience, John Wiley & Sons, Inc. New York, 1991.
6. D. L. Pavia, G. M. Lampman, G. S. Kriz, Jr., Introduction to Spectroscopy, Saunders Golden Sunburst series, 2nd ed 1996.
7. P. Atkins, L. Jones, Princípios de Química, Bookman, 5a edição, 2011.

Evaluation criteria

For grading policy, see: Regimento Geral de Graduação, Seção I – Normas Gerais, Capítulo V – Da Avaliação do Aluno na Disciplina. Students are required to attend 75 % of the lectures. For further details, see: Regimento Geral de Graduação, capítulo VI, seção X, artigo 72.