UNIVERSIDADE ESTADUAL DE CAMPINAS
INSTITUTO DE QUÍMICA

**PROGRAMS AND BIBLIOGRAPHY**

| Subject | |
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| **Code** | **Name** |
| QG650 | Laboratory of Organic and Inorganic Synthesis |

| Vector |
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| OF:S-2 T:000 P:000 L:006 O:002 D:000 HS:008 SL:006 C:008 AV:N EX:S FM:75% |

| Pre requirement | QI145 QO521 |
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**Summary**

Learning the techniques of preparation, isolation, purification and characterization of organic and inorganic substances, handling of toxic and flammable substances, and the assembly of equipment necessary for various purposes. Are studied various strategies of synthesis, purification and characterization, including the use of inert atmosphere

**Program**

-Experience in the techniques of preparation, isolation, purification and characterization of organic and inorganic substances, handling of toxic and flammable substances, and the assembly of necessary equipment for various purposes.
- Stimulation and expansion of fundamental knowledge, since the discipline covers the correlation of structures, properties, transformations of functional groups, syntheses and characteristics of the substances studied.
- Several strategies of synthesis, purification and characterization are studied, showing the shift of the equilibrium of reactions through the removal of the products or sub-products, or by the precipitation of the same; the use of an inert atmosphere and / or anhydrous medium; purification by distillation, crystallization, sublimation or column chromatography;
- Characterization by infrared spectroscopy, nuclear magnetic resonance spectroscopy, melting point, gas chromatography.
- Among the several reactions studied, the Grignard reaction (synthesis of triphenylmethanol) and the synthesis and purification of ferrocene and its acetylated derivative (which illustrates the change in the reactivity of an organic molecule when it is coordinated to a transition metal).

**Bibliography**

1) D. L. Pavia, G. M. Lampman e G. S. Kriz. Crystallization: Purification of Solids. Em: “Introduction to Organic Laboratory Techniques: a Contemporary Approach”. 2a ed. Saunders, Philadelphia, 1982. pp.481-490.
2) D. L. Pavia, G. S. Kriz e R. G. Engel. Gas Chromatography. Em: “Introduction to Organic Laboratory Techniques: a Microscale Approach”. 3a ed. Saunders, Philadelphia, 1999. pp.711-725.
3) D. L. Pavia, G. M. Lampman e G. S. Kriz. “Introduction to Spectroscopy”. 2nd ed. Saunders, Philadelphia, 1996. cap. 2-4 e 7.

4) D. L. Pavia, G. S. Kriz e R. G. Engel. Preparation of Samples for Spectroscopy. Em: “Introduction to Organic Laboratory Techniques: a Microscale Approach”. 3a ed. Saunders, Philadelphia, 1999. pp.742-760.
5) D. A. Skoog, F. J. Holler, T. A. Nieman. Aplicações da Espectrometria de Absorção Molecular no UV/Vis. Em: “Princípios de Análise Instrumental”. 5a ed. Bookman, 2002. pp. 300-309.
6) D. F. Shriver, P. W. Atkins. The Electronic Spectra of Complexes. Em: “Inorganic Chemistry”. 3rd ed. Oxford University Press, 1999. p. 437-450.
7) D. L. Pavia, G. M. Lampman e G. S. Kriz. Sublimation. Em: “Introduction to Organic Laboratory Techniques: a Contemporary Approach”. 2a ed. Saunders, Philadelphia, Approach”. 2a ed. Sounders, Philadelphia, 1982, pp. 596-600.
8) D. L. Pavia, G. S. Kriz e R. G. Engel. Thin-Layer Chromatography. Em: “Introduction to Organic Laboratory Techniques: a Microscale Approach”. 3a ed. Saunders, Philadelphia, 1999. pp.697-710.
9) D. L. Pavia, G. M. Lampman e G. S. Kriz. Column Chromatography. Em: “Introduction to Organic Laboratory Techniques: a Contemporary Approach”. 2a ed. Saunders, Philadelphia, 1982. pp.553-570.

| **Evaluation criteria** |
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| 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. |