Code: **QI546**

Name: **Química Inorgânica Experimental II**

Name in English: **Inorganic Chemistry Laboratory II**

Name in Spanish: **Química Inorgánica Experimental II**

Subject type: **Weekly**

Approval Type: **Grade and frequency**

Characteristic: **Regular**

Frequency: **75%**

Period Type / Offering period: **Semestral / 1st Period – odd periods**

Requires Final Exam: **Yes**

Vectors

T	L	P	O	PE	OE	SL	Weeks	CREDITS
-	**4**	**-**	**1**	**-**	**-**	**4**	**15**	**5**

Occurrence on curriculum: **50**

Pre requirement: ***QG650 + *QI545**

Summary: Synthesis, characterization and applications of inorganic compounds, especially d and f transition metals

Program:

Preparation and characterization of coordination complexes from d and f-blocks ions, organometallic compounds of d-block elements and/or bioinorganic model compounds.

Preparation of extended inorganic solids and nanostructured materials.

Characterization of the synthesized compounds, exploring several techniques and properties such as powder X-rays diffraction, electronic spectroscopies, circular dichroism, vibrational spectroscopies, nuclear magnetic resonance, electrochemical, luminescence and magnetic properties.

Application of inorganic compounds in: catalysis, photocatalysis, energy conversion, magnetism, sensors, electrochemistry, optics, among others.

Basic Bibliography

1) BORGO, C. A.; LAZARIN, A. M.; DAVANZO, C. U.; GUSHIKEM, Y. **Preparação e Caracterização do Complexo Cobaloxima e Sua Utilização na Construção de um Eletrodo Modificado.** Um Experimento Eletroquímico no Curso de Graduação. Química Nova, vol. 26, n.6, p. 943-947, 2003.

2) VRUBEL, H.; HASEGAWA,T.; DE OLIVEIRA, E.; NUNES, F. S. **A new facile high yield preparative route for mixed-trinuclear acetate clusters. Inorganic Chemistry Communications**, vol. 9, n. 2, p.208-211, 2006.

3) TASIĆ, L. **Química em 50 Ensaios** – Campinas-SP: Editora Átomo 2017, p. 134-148; 201-218; 270-281; 297-304

Supplementary Bibliography

1) BROWN, T. M.; COOKSEY, C. J.; CRICH, D. **Cobaloximes as vehicles for college teaching. Journal of Chemical Education**, vol. 67, n. 11, p. 973-974, 1990

2) KELLER, S. W.; MALLOUK, T. E. **Experiments Illustrating Metal-Insulator Transitions in Solids. Journal of Chemical Education**, vol. 70, n. 10, p. 855-860, 1993

3) MACFARLAND D. K.; HARDIN, C. M.; LOWE M. J**. A Phthalocyanine Synthesis Group Project for General Chemistry**. **Journal of Chemical Education**, vol. 77, n. 11, p. 1484-1485, 2000

4) GUSHIKEM, Y. **Espectros eletrônicos de alguns complexos de geometria octaédrica de Ni2+: uma introdução prática à teoria do campo cristalino no curso de graduação.** Química Nova, Vol. 28, n. 1, p. 153-156, 2005

5) MELO JR., M.; SANTOS, L. S. S.; GONÇALVES, M. C.; NOGUEIRA, A. F. **Preparação de nanopartículas de prata e ouro: um método simples para a introdução da nanociência em laboratório de ensino.** Química Nova, vol. 35, n.9, p. 1872-1878, 2012
6) Material bibliográfico selecionado pelo professor