UNIVERSIDADE ESTADUAL DE CAMPINAS
INSTITUTO DE QUÍMICA

PROGRAMS AND BIBLIOGRAPHY

Subject	
Code	**Name**
QA815	Environmental chemistry

Vector
OF:S-5 T:002 P:002 L:000 O:000 D:000 HS:004 SL:004 C:004 AV:N EX:S FM:75%

Pre requirement	QA282 *QF531

Summary

Soil, water and atmosphere chemistry. Environmental pollution: prevention and treatment processes (remediation). Chemical reactions and processes of interest to human health in waters, soils and atmosphere. Legislation and environmental pollution.

Program

Introduction to environmental problems, sustainability and green chemistry. Biogeochemical cycles of elements. Chemistry of atmosphere: evolution of primitive atmosphere; atmosphere structure; photochemical reactions; greenhouse effect and climate changes. Air pollution: point and diffuse sources – emission modeling; legislation and quality standards. Hydrosphere and processes: eutrophication process; water/atmosphere interface and $CO_2/HCO_3^-/CO_3^{2-}$ system. Pollution and water treatment, effluents treatment. Legislation and quality standards. Soil chemistry. Sorption and contaminants dissipation from soil. Contaminants and soil remediation. Ecotoxicology principles. Water and effluents treatment plants. Students' seminars presentation about theory complementary themes. Scientific and newspaper manuscripts discussion.

Bibliography

1. Baird,C., Environmental Chemistry. New York: W. H. Freeman Editor, 2003.
2. Baird, C., Química Ambiental. Porto Alegre: Bookman Editor, 2004.
3. Manahan, S.E., Environmental Chemistry. Boca Raton: CRC Press Editor, 2004.
4. Spiro, T andStigliani, W. Química Ambiental. 2nd edition São Paulo: Pearson Editor, 2008.
5. Rocha, J.C.; Rosa, A.H.; Cardoso, A.A. Introdução à Química Ambiental. 2nd Edition. Porto Alegre: Bookman Editor, 2009.
6. Campos, M.L.A.M. Introdução à biogeoquímica de ambientes aquáticos. Campinas, SP: Átomo Editor, 2010.
7. Química Nova na Escola, Cadernos Temáticos; environmental chemistry special edition; May 2001.
8. Química Nova, Vol. 25, Supl. 1, 2002.
9. Hatje, V.; Costa, M.F.; Cunha, L.C. Oceanografia e Química: unindo conhecimentos em prol dos oceanos e da sociedade. Química Nova, Vol. 36, No 10, 1497-1508, 2013.

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.