UNIVERSIDADE ESTADUAL DE CAMPINAS
INSTITUTO DE QUÍMICA

PROGRAMS AND BIBLIOGRAPHY

Subject	
Code	**Name**
QI853	Introduction to Crystallography

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

Pre requirement	QI145

Summary

Crystals and crystalline structures. Crystalline lattices and spatial symmetry. Crystalline systems. Diffraction in crystals: X-rays, neutrons and electrons. Introduction to the determination of crystalline structure. Examples of minerals, ionic and molecular compounds

Program

Cell units and lattices and the diffraction experiment; reciprocal space and structural factors.

Crystal symmetry; symmetry involving translation; crystalline systems and spatial groups.

Experimental methods: processes and methods of crystallization; data collection for monocrystals and polycrystalline samples. X-rays, neutrons and electrons diffractions.

Refinement of structures; Patterson and direct methods; minimum squares method. Disorder. Anomalous dispersion.

- Crystallographic databases.

Bibliography

Textbooks
Hammond, C. The basics of crystallography and diffraction. 3rd ed. Oxford, N.Y.: Oxford University Press, 2009.
Massa, W. Crystal structure determination. 2nd ed. Berlin: Springer, 2004.
Clegg, W. Crystal structure determination. Oxford: Oxford University Press, 1998.

Supplemental Readings
Articles selected by the professor.

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.