

**Course:** Soil Chemistry and Mineralogy

**Co-ordenator:** Dr. Virgínia Damin

**Workload:** 64 hours

**Credit points:** 4 credits

**Periodicity:** Annual

**Semester:** first

**PREREQUISITES:** none

**COURSE DESCRIPTION:** Discussions of interactions between soil solids, precipitates and solution phases including: mineralogy, ion exchange, adsorption, weathering and buffering, soil colloidal behavior, acidic and basic soils, salinity, and models of solution and solid phase interactions.

**AIMS:** The main aim of this course is to enable post grad students coming from a range of backgrounds and studying environmental and soil Science, the opportunity to enhance their core skills related to soil minerals and their influence in soil attributes, crop production and environmental pollution.

**TEACHING METHODS:** The lectures will be given by the students and the co-ordenator, after each lecture, a discussion about the themes will occur. Many class will have exercises aim at verifying the ability of applying the theoretical knowledge about soils chemistry.

**ASSESSMENT METHODS:** The learning test for the course will be made through a final writing examination, a examination at 6 weeks course, exercises and oral presentation (lectures)

### **COURSE PROGRAMME**

Week 1 - Introduction	Week 9 – Chemistry of flooded soils
Week 2. The soil solid phase	Week 10 – Chemistry of high weathering soils/ PZC – point of zero charge
Week 3 -Chemistry of the soil solution and solid phase	Week 11 – Chemistry of soils with carbonates
Week 4. Solubility relationship of soil components	Week 12 – Chemistry of soils with salts and sodium
Week 5. Factors and process on soil formation	Week 13 – Chemistry of soils with salts and sodium
Week 6 – Writing examination	Week 14 – Chemistry of soils with salts and sodium
Week 7 – Soil formation process	Week 15 – Pesticides and environment
Week 8- Chemistry of acid soils	Week 16 – Final writing examination

**BIBLIOGRAPHY**

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- Ker,J.C; Curi, N.; Shaefer, C.E.G.R.; Vidal-Torado, P. (Orgs.). <strong>Pedologia:Fundamentos</strong>. 1a.. SBCS. 2012
- BRADY, N.C.; WEIL, R.R.. <strong>Elementos da Natureza e Propriedade dos Solos</strong>. 3. Ed. Bookman. Porto Alegre.. 2013
- SANTOS, R.D. et al. 2005. <strong>Manual de descrição e Coleta de solo no campo.</strong>. 5ª Ed.. SBCS/CNPS, Viçosa.. 2005
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