

Course description

Course Title Stereochemistry Estereoquímica		
Type/Attendance Time Lecture: 2 hours per week Tutorial: 1 hour per week	Credit points (ECTS) 4	Type of Examination written exam 120 min
Recommended Prerequisites none		
Content <ol style="list-style-type: none"> 1 Introduction: Chemistry in 3 dimensions 2 Basic terminology <ol style="list-style-type: none"> 2.1 Constitutional isomers 2.2 Stereoisomers 2.3 Elements of symmetry, point groups, symmetry operations 2.4 Representations of 3D structures 3 Static stereochemistry <ol style="list-style-type: none"> 3.1 A short history of stereochemistry, experiments & methods 3.2 Enantiomers (elements of chirality, properties of enantiomers) 3.3 Diastereomers (properties & methods) 3.4 Prostereoisomers 4 Dynamic stereochemistry <ol style="list-style-type: none"> 4.1 Rotational isomers 4.2 Inversions 5. Stereocontrol of organic reactions <ol style="list-style-type: none"> 5.1 Substitutions at sp^3, additions to sp^2, eliminations 5.2 Cyclic compounds (Baldwin-rules) 5.3 Diastereoselective reactions (substrate-controlled, auxiliary-controlled, Felkin-Ahn, Zimmerman-Traxler, Schöllkopf, Evans-Aldol, chiral borane reagents) 5.4 Catalytic enantioselective reactions (epoxidations, hydrogenations, allylic alkylation, chiral catalysts for further reactions) 5.5. Enzymes in organic chemistry (reactions, desymmetrization, racemic resolution) 5.6 From catalytic antibodies to “organocatalysis” 		
Conteúdo <ol style="list-style-type: none"> 1. Introdução: Química em 3 dimensões; 2. Terminologia básica; 3. Estereoquímica estatística; 4. Estereoquímica dinâmica; 5. Estereo-controle de reações orgânicas. 		