~~XXX~~001-~~XX~~2-~~XXX~~032 Advanced chemistry in water technologies (3 credits optional course) 001-2-0032

Lectures (hrs/week)	Exercise (hrs/week)	Laboratory	Field Trip
3		Y	

Aims:
Chemistry and organic chemistry are commonly used in the production of environmental technology including membranes, adsorbents, and next generation surfaces for water treatment. The focus will thus be the chemistry behind current environmental technologies. Topics (see specific topics below) will include bioinspired, catalytic or electrically conductive membranes and focus will be on the organic chemistry, new materials, and strategies to achieve these innovations.

The course will also be comprised of laboratory work where students will learn the techniques for adsorption of pollutants on novel adsorbents. The student will test a novel adsorbent and analyze and summarize the results in reports (lab assignment). Also, students will study the chemical degradation of membranes in the laboratory.

Course contents:

- Ordered water on surfaces
- Graphene in Environmental technology I
- Graphene in Environmental technology II
- Carbon in Environmental technology
- Adsorption I
- Adsorption II
- Adsorption III (LAB)
- Degradation of polyamide membranes I
- Degradation of polyamide membranes II
- Degradation of polyamide membranes III (LAB)
- Bioinspired membranes I
- Bioinspired membranes II

Grade and Requirements:
The final grade will be based on the written report of the lab assignment and a presentation of a literature example.

Literature: References will be given during the course

Lecturer: Dr. Christopher Arnusch