



# F3B5282 Advanced Surface- and Colloid Chemistry 15.0 credits

Avancerad yt- och kolloidkemi

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

## Establishment

Course syllabus for F3B5282 valid from Spring 2015

## Grading scale

undefined

## Education cycle

Third cycle

## Specific prerequisites

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

Provide a deep knowledge about surface and colloid chemistry.

## Course contents

This course covers many aspects of surface thermodynamics, surfactant association and phase diagrams, surface forces, colloidal stability and emulsions. It closely follows Evan and Wennerström's book: "The Colloidal Domain".

## Disposition

The course consists of eleven seminars in a lecture/tutorial style followed by a final examination seminar. The course participants should prepare themselves before each seminar by reading the corresponding book chapter and solving the assigned exercises. In each seminar, the key elements of the corresponding chapter will be first summarized and placed in a general context, followed by small group discussions on issues found when solving the assigned problems. The course will end with a mandatory examination seminar where each student will make a 10 min presentation of a scientific publication in the field (list of articles to choose from to be provided during the course).

Schedule: Date/seminar subject/lecturer

### **1st of June 13.30-16.30**

1. Solutes and Solvent, Self-assembly of amphiphiles. Eric T.

### **10th of June, 9.00-12.00**

2. Surface Chemistry and Monolayers, - Mark R.

### **23rd of June 9.00-12.00**

3. Electrostatic interactions in Colloidal Systems - Eric T.

### **19th of August 9.00-12.00**

4. Structure and Properties of Micelles - Istvan F.

### **21st of August 9.00-12.00**

5. Forces in Colloidal Systems - Mark R.

### **24th of August 9:30-12:30**

6. Bilayer Systems - Eric T.

### **28th of August 9:30-12:30**

7. Polymers in Colloidal Systems - Per C.

### **31st August 9:30-12:30**

8. Colloidal Stability - Per C.

### **1st of September 9.00-12.00**

9. Colloidal Sols - Mark R.

### **11th of September 9:30-12:30**

10. Phase Equilibria and Phase Diagrams - Per C.

### **16th of September 9:30-12:30**

11. Micro and Macroemulsions - Eric T.

### **24th of September 9:00-12:30**

Examination seminar - Istvan F. Eric T.

## **Course literature**

Evans and Wennerström's book "The Colloidal Domain" Second Edition. (Wiley)

## **Examination**

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

To approve the course the student will need to first, successfully present and discuss the selected scientific publication in the examination seminar, and second, submit all assigned exercises (see below) no later than the 21st of October 2015.

## **Ethical approach**

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.