



# F3B5282 Avancerad yt- och kolloidkemi 15,0 hp

Advanced Surface- and Colloid Chemistry

När kurs inte längre ges har student möjlighet att examineras under ytterligare två läsår.

## Fastställande

Kursplan för F3B5282 gäller från och med VT19

## Betygsskala

undefined

## Utbildningsnivå

Forskarnivå

## Särskild behörighet

## Undervisningsspråk

Undervisningsspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

## Lärandemål

The course emphasizes on understanding the molecular interactions that determine the properties of colloidal systems, and provides a deep knowledge of surface and colloid chemistry.

# Kursinnehåll

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".

## Kursupplägg

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 topic 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).

Course Schedule:

Date	Seminar subject	Lecturer
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### **15th April 9.00-12.00**

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

### **26th of April 9.00-12.00**

2. Surface Chemistry and Monolayers. Georgia P.

### **2nd of May 9.00-12.00**

3. Electrostatic interactions in Colloidal Systems. Eric T.

### **9th of May 9.00-12.00**

4. Structure and Properties of Micelles. Istvan F.

### **16th of May 9.00-12.00**

5. Forces in Colloidal Systems. Per C.

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

6. Bilayer Systems. Eric T.

### **28th of May 9.00-12.00**

7. Polymers in Colloidal Systems. Per C.

### **4th of June 9.00-12.00**

8. Colloidal Stability. Per C.

### **13th of June 9.00-12.00**

9. Colloidal Sols. Georgia P.

**18th of June 9.00-12.00**

10. Phase Equilibria and Phase Diagrams. Georgia P.

**26th of June 9:00-12:00**

11. Micro and Macroemulsions. Eric T.

**20th of August 9:00-12:30 / 14:00-16:00**

Examination seminar. Eric T. and Istvan F.

**15th of September 2019**

Deadline for submission of assigned exercises

## Kurslitteratur

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

## Examination

Examinator beslutar, baserat på rekommendation från KTH:s handläggare av stöd till studenter med funktionsnedsättning, om eventuell anpassad examination för studenter med dokumenterad, varaktig funktionsnedsättning.

Examinator får medge annan examinationsform vid omexamination av enstaka studenter.

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 (to be provided). Note that at least 8 out of the 11 seminars also need to be attended.

## Etiskt förhållningssätt

- Vid grupparbete har alla i gruppen ansvar för gruppens arbete.
- Vid examination ska varje student ärligt redovisa hjälp som erhållits och källor som använts.
- Vid muntlig examination ska varje student kunna redogöra för hela uppgiften och hela lösningen.