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 VT15

Betygsskala

undefined

Utbildningsnivå

Forskarnivå

Särskild behörighet

Undervisningsspråk

Undervisningsspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

Lärandemål

Provide a deep knowledge about 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 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.

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 (see below) no later than the 21st of October 2015.

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.