



# IM3002 Advanced Topics in Materials Science 6.0 credits

## Avancerade ämnen i materialvetenskap

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Course syllabus for IM3002 valid from Spring 11

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

### **Grading scale:**

**Education cycle:** Third cycle

### **Intended learning outcomes**

Fundamental understanding of

- energetic electrons interaction with matter
- primary and secondary signals sources and utility of such interactions
- qualitative and quantitative analytical techniques associated with the interaction
- basic physics of interaction
- interrelations between transmission, diffraction, absorption and reflection phenomena

### **Course main content**

The course is based on open literature and below listed textbooks where the course participants are demanded very active participation. The course is conducted in a seminar form, with discussion and analysis of how topographic, morphological, compositional and crystallographic information are deduced using scanning and transmission electron microscopes.

### **Disposition**

The course is planned in form of seminar modules. Students will do seminars during the course and it is compulsory to attend all seminar events during the active period of the course.

### **Language of instruction**

Language of instruction is specified in the course offering information in the course and programme directory.

### **Eligibility**

### **Literature**

Selected research articles and the following books

Scanning Electron Microscopy and X-Ray Microanalysis. Joseph I. Goldstein etl. 1992

Electron Backscatter Diffraction in Materials Science. Adam J. Schwartz etl. 2000

Electron Energy Loss Spectroscopy Rik Brydson 2006

## **Examination**