

## **Ansökan om medel för fakultetsgemensam forskarutbildningskurs**

**Kursnamn:** Nanostructural biomaterials and their applications

Name of course

**Omfattning (högskolepoäng):** 5hp

ECTS credits

**Antal platser:** 20

Maximum number of participants

**Undervisningsspråk :** English

Language of instruction

**Kursens syfte samt motivering till varför den bör vara fakultetsgemensam (max 150 ord)**

Aim of course and motivation as to why it should be considered "multidisciplinary" to the extent that the faculty should allocate extra financing.

The aim of this course is to (1) explain the specific properties and general argument of nanomaterials that contribute in biomedical applications, (2) describe different techniques of synthesis of nanostructural biomaterials, (3) discuss the recent applications and challenges in tissue repair and regeneration, drug and gene delivery, and other nanobiotechnology, (4) Design and evaluate nanostructural biomaterials whose chemical, physical and biological properties can match the requirements of applications.

This course includes the knowledge in chemistry, physics, biology and engineering. Students have to know synthesis of nanobiomaterials by physical and chemical methods, analysis of nanomaterials, and knowledge in biomedical application and use them to evaluate and design present and new nanobiomaterials.

**Kursinnehåll, kursens uppläggningsform samt examinationsform (max 150 ord)**

Contents, study format and form of examination

This course presents nanostructural materials in biomedical applications. (1) Summary of recent development of nanostructural biomaterials: synthesis, analysis and properties. (2) Discussion of different biomedical application in tissue repair and regeneration, drug and gene delivery, and other nanobiotechnology. (3) Discussion of general argument of nanomaterials used in biomedical field. (4) Inviting guest lectures.

Lectures (including guest lectures), demonstration, group work

Examination: writing reporting and oral presentation

**Målgrupp/er (specifera ämnen/inriktningar) samt rekommenderade förkunskaper**

Target group/s (specify, if possible, subject/specialization) and recommended background

PhD students from Science or Engineering

**Huvudansvarig institution:** Department of Engineering Sciences

Department with main responsibility

**Kontaktperson/er (namn, e-postadress)**

Contact person (name, e-mail address)

Wei Xia, wei.xia@angstrom.uu.se

## Anmälan om kursdeltagande till

Application from course participants should be sent to

**Wei Xia**

## Budget

Kostnader (SEK). Sökt finansiering skall motiveras nedan. Medel utbetalas i efterskott

Costs, funding applied for should be motivated below. Approved funding will be transferred after the course is completed.

	Bidrag från insitution/er Contribution from department/s	Fakultetsfinansiering (sökt belopp) Faculty funding (applied for)
Lärartid Time by involved teachers	20000	50000
Gästföreläsare Guest lecturers	0	20000
Laborationer ed. Practical exercises	0	0
Andra kostnader (specifiera) Other costs (specify)		
Summa Sum	<b>20000</b>	<b>70000</b>
<b>Totalkostnad</b> Total costs	<b>90000</b>	

Motivering till sökta medel (max 300 ord)

Motivation to the funding applied for

The funding applied for in connection with the time dedicated by involved teachers should be used for developing the course structure and content. Books and relevant materials are generally needed and due to the limited time of the course the content needs to be well focused on relevant topics. Since the course hasn't run at Uppsala University before, a fair amount of time needs to be dedicated to developing the course. An evaluation of the course plan will be performed by consulting colleagues at different departments (Engineering Sciences and Materials Chemistry) prior to the course start.

The cost allocated for guest lecturers is the cost for their travel, including flight and hotel.