Nanoscience and nanotechnology: an introduction

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Aim

- Overview of the current research and applications in Nanoscience and nanotechnology

- Overview of the Engineering Nanoscience curriculum

- Strengthen soft skills:
  Communication (writing skills, presentation skills)
  Team work, Problem Solving, Responsibility
  (peer instruction, peer feedback)
<table>
<thead>
<tr>
<th>Läsvecka</th>
<th>Veckodag</th>
<th>Datum</th>
<th>Tid</th>
<th>Plats</th>
<th>Innehåll</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Mon</td>
<td>2 SEP</td>
<td>10-12</td>
<td>K404</td>
<td>Lecture-Course start</td>
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<tr>
<td></td>
<td>Thu</td>
<td>5 SEP</td>
<td>10-12</td>
<td>K404 +H221</td>
<td>Lecture: Nanostructured surfaces and wetting (CP)</td>
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<tr>
<td></td>
<td>Mon</td>
<td>9 SEP</td>
<td>10-12</td>
<td>K404 +H221</td>
<td>Lecture: Nanofabrication (CP)</td>
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<td></td>
<td>Thu</td>
<td>12 SEP</td>
<td>10-12</td>
<td>K404 +H221</td>
<td>Lecture: Semiconductor Physics (DH)</td>
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<td></td>
<td>Fri</td>
<td>13 SEP</td>
<td>13:15-15:15</td>
<td>Lundmarksalen, Astronomy building</td>
<td>Skattjakt på biblioteken</td>
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<td></td>
<td>Mon</td>
<td>16 SEP</td>
<td>10-12</td>
<td>K404 +H221</td>
<td>Lecture: Intro to Quantum Physics I (DH)</td>
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<td>Wed</td>
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<td>10-12</td>
<td>K404 +H221</td>
<td>Lecture: Intro to Quantum Physics II (DH)</td>
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<td></td>
<td>Fri</td>
<td>20 SEP</td>
<td>13-17</td>
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<td>Lab visits 1 (I= Nanophysics (Dan Hessman), II= Nanoelectronics (Johannes Svensson), III= Nanomaterials (Reine Wallenberg), IV= Bio/Medicine (Lina Pettersson))</td>
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<tr>
<td></td>
<td>Mon</td>
<td>23 SEP</td>
<td>13-17</td>
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<td>Lab visits 2 (I= Nanophysics (Dan Hessman), II= Nanoelectronics (Johannes Svensson), III= Nanomaterials (Reine Wallenberg), IV= Bio/Medicine (Lina Pettersson))</td>
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<td>13-17</td>
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<td>26 SEP</td>
<td>13-17</td>
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<td>Lab visits 4 (I= Nanophysics (Dan Hessman), II= Nanoelectronics (Johannes Svensson), III= Nanomaterials (Reine Wallenberg), IV= Bio/Medicine (Lina Pettersson))</td>
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<td>Mon</td>
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<td>13-15</td>
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<td>Lecture: Visualising the nanoworld I (CP)</td>
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<td>Wed</td>
<td>2 OCT</td>
<td>10-12</td>
<td>K404 +H221</td>
<td>Lecture: Visualising the nanoworld II (CP) - Assignments before the exams.</td>
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<td>Mon</td>
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<td>13-15</td>
<td>K404 +H221</td>
<td>Lecture: Microfluidics-Lab on a chip (CP)</td>
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<td>14 OCT</td>
<td>13-15</td>
<td>K204+ K215-216</td>
<td>Poster making</td>
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<td>17 OCT</td>
<td>10-12</td>
<td>K204+ K215-216</td>
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<td>K204+ K215-216</td>
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<td>Between 4/11 and 15/11</td>
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LP1

- Lectures

- Lab Visits

- Exam: Poster presentation
LP1

- Lectures:
  - Nanofabrication
  - Semiconductor physics
  - Micro and nano-fluidics
  - Interfacial energy and nano
  - Quantum Physics
  - Microscopy

- Lab Visits

- Exam: Poster presentation
LP1

- Lectures:
  - Nanofabrication
  - Semiconductor physics
  - Quantum Physics
  - Micro and nano-fluidics
  - Interfacial energy and nano
  - Microscopy

ATTENDING THE LECTURES IS MANDATORY!!

- Lab Visits

- Exam: Poster presentation
LP1

- Lectures:

- Lab Visits

- Exam: Poster presentation
LAB VISITS-2019

NanoPhysics: Dan Hessman
Nanoelectronics: Johannes Svensson
NanoMaterials: Reine Wallenberg
NanoBiomedicine: Lina Pettersson
Groups:

**Group 1: ABRAHAMSSON – BRANDEL**
- Nanophysics: Fri 20/09, 13-17, FTF k-space
- Nanolectronics: Mon 23/09, 13-17, EIT E2349
- Nanomaterials: Tues 24/09, 13-17, Kemicentrum, entrance A
- Bio/medicine: Thu 26/09, 13-17, Medicon Village

**Group 2: BÄCKSTRÖM – KÄRRHOLM**
- Nanolectronics: Fri 20/09, 13-17, EIT E2311
- Nanomaterials: Mon 23/09, 13-17, Kemicentrum, entrance A
- Bio/medicine: Tues 24/09, 13-17, Medicon Village
- Nanophysics: Thu 26/09, 13-17, FTF k-space

**Group 3: LUNDBERG – OLSSON**
- Nanomaterials: Fri 20/09, 13-17, Kemicentrum, entrance A
- Bio/medicine: Mon 23/09, 13-17, Medicon Village
- Nanophysics: Tues 24/09, 13-17, FTF k-space
- Nanolectronics: Thu 26/09, 13-17, EIT E2349

**Group 4: PELTONEN – WRAMÅS**
- Bio/medicine: Fri 20/09, 13-17, Medicon Village
- Nanophysics: Mon 23/09, 13-17, FTF k-space
- Nanolectronics: Tues 24/09, 13-17, EIT E1426
- Nanomaterials: Thu 26/09, 13-17, Kemicentrum, entrance A
Meeting points:

**Nanophysics**: k-space, FTF

**Nanoelectronics**: E1426, E2311, E2349

**Nanomaterials**: Kemicentrum, Ingång A, Sölvegatan

**Bio/Medicine**: Medicon village: building 404 entrance
Nanophysics (Dan Hessman)
Meeting in k-space FTF at 13:15
If you do not know where the k-space is, meet Dan at the red cross at 13:15.
Nanoelectronics (Johannes Svensson)
Nanoelectronics (Johannes Svensson)
Nanobiomedicine (Lina Pettersson)
Meeting: Medicon village, entrance of building 404
Nanomaterials (Reine Wallenberg)
Meeting: Kemicentrum, entrance A at 13:15
Lab visit reports

Instructions:
After the lab visits, you should write a report
(min ½ page per visit and maximum 1 page per visit)
All the 4 lab visits should be assembled in a single pdf document with your name and the title of each visit.

The report should describe what you have seen during each lab visit and should also describe the area of research.

In order to help you, specific questions will be posted on the course homepage after the last visit on 26/09.
The answer to the questions should be included in your report.

The reports should be sent to Christelle by email (christelle.prinz@ftf.lth.se) by October 11th.
LP4

- Work on project: based on literature + interaction with a researcher

- Exam: Written Report + Oral presentation