

### **The Honor Principle**

Discussions about general points with respect to the problem sets and labs are permitted: any information gained from such discussions **must** be referenced in your problem sets and laboratory reports. For your term paper, any discussions with others should be referenced.

Problem sets and laboratory reports count towards your final grade, thus discussion of specific homework questions, or calculations for laboratory reports is expressly forbidden.

### **Laboratory Sessions**

1. Single Crystal orientation determination using the Laue Method.
2. Phase identification and lattice parameter measurement by X-rays.
3. Introduction to scanning probe microscopy.
4. Imaging, diffraction and microanalysis in a SEM
5. Imaging and diffraction in a TEM.

### **Laboratory Reports**

Reports should be brief (10 pages max. including figures), to the point and contain all (and only) relevant information. Large sections copied from textbooks into your report will not gain additional credit. The report serves two functions. First, for me to see that you have understood the lab and, second, as a useful permanent record for you. Both points require a clear report.

The report should be set out with the following headings in mind:

1. Object of the experiment(s).
2. Theory - brief and specific to the lab only.
3. Apparatus and methods. For the experimental arrangement, show a schematic of the geometry of the relevant part of the apparatus rather than a diagram of the whole machine.
4. Results.
5. Calculations.
6. Error analysis (if appropriate).
7. Conclusions.

**Grading**

Problem Sets (5)	40%
Lab. reports (5)	40%
Term paper and presentation	20%

**Important Times and Dates**

Problem Sets due: #1	4 p.m., Friday, April 7th
#2	4 p.m., Friday, April 21st
#3	4 p.m., Friday, May 5th
#4	4 p.m., Friday, May 19th
#5	4 p.m., Friday, May 26th

**Laboratory Sessions:**

Laue <sup>†</sup>	Arrange during week starting April 3rd
Diffractionmeter <sup>†</sup>	Arrange during week starting April 10th
SPM <sup>*</sup>	Arrange during week starting April 24th
SEM <sup>*</sup>	Arrange during week starting May 8th
TEM	Arrange during week starting May 22nd

**Laboratory reports due:**

Laue	4 p.m., Friday, April 14th
Diffractionmeter	4 p.m., Friday, April 21st
SPM	4 p.m., Friday, May 5th
SEM	4 p.m., Friday, May 19th
TEM	4 p.m., Friday, May 26th

**Late reports and problem sets will be penalized.**

Term paper due on Wednesday, May 31<sup>st</sup>

Final Presentations to be held on Wednesday, May 31<sup>st</sup>

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<sup>†</sup> Dr. Daniel Cullen will run this laboratory session.

<sup>\*</sup> Dr. C.P. Daghljan will run this demonstration.