

FYS3410, Spring 2011, final examination

The examination is oral and with external censorship. You will draw a question among those questions given in advance, and you will then have 30 minutes preparation time. The examination itself will take approximately 30 minutes. During the first 15 minutes of the examination you present your answer to the question which you have drawn; in the next about 10-12 minutes you will be asked general questions related to the contents of the course; the rest of the time is for internal discussion of your performance. Altogether your presence is required for approximately 1 hour (please choose an appropriate slot of time from those suggested below). The place for the examination is going to be decided and announced in the nearest future.

Note that 15 minutes is not a lot of time for making a presentation - you will have to be selective and you will also be evaluated on how well you have selected relevant materials. Try to avoid the use of written notes during the examination - an excessive use of notes will be used against you.

Questions for the FYS 3410 examination, Spring 2011

Reciprocal lattice; concept and its use in understanding of x-ray diffraction and energy bands

Structural defects and atomic diffusion in crystals

Crystal vibrations

Phonon heat capacity

Free electron gas in 1-, 2- and 3-dimensions

Thermal and electrical properties explained in terms of FEEG; comparison with experiments and limitations.

Energy bands, nearly free electron model, Kronig-Penney model.

Empty lattice approximation; number of orbitals in a band; metals and insulators

Effective mass approximation and its application for understanding "hydrogen-like" impurities in semiconductors

Intrinsic and extrinsic carrier generation in semiconductors

p-n junctions

Zone schemes and Fermi surfaces

Schedule for the final oral examination in FYS3410, spring 2010

26/5/2011

12.00-12.30	Marit Norderhaug
12.30-13.00	bare_marit@hotmail.com

12.30-13.00	Sindre Østby Stub
13.00-13.30	sindrestub@gmail.com

13.00-13.30	Mads Eide Ingebrigtsen
13.30-14.00	mads.ingebrigtsen@gmail.com

13.30-14.00	Espen Sørli Helgeby
14.00-14.30	ehelgeby@hotmail.com

14.00-14.30	Roger Wold
14.30-15.00	rogerwold11@hotmail.com

14.30-15.00	samanm@student.matnat.uio.no
15.00-15.30	Saman Mahemahian

30 min break

26/05/2011

15.30-16.00	Tor Kristian Andersen
16.00-16.30	tkr.and@gmail.com

16.00-16.30	Monem Ayaz
16.30-17.00	auayaz@student.matnat.uio.no

16.30-17.00	Audun Lonar Barth
17.00-17.30	audbarth@online.no

27/05/2011

08.00-08.30	kristin.ebbesen@fys.uio.no
08.30-09.00	Kristin Ebbesen

08.30-09.00	audunska@student.matnat.uio.no
09.00-09.30	Audun Skaugen

09.00-09.30	Munir Yasin
09.30-10.00	rendez_vous20@hotmail.com

09.30-10.00	Fredrik Kvalheim Eriksen
10.00-10.30	fred-ke@online.no

10.00-10.30	Helle Berg Bjørsom
10.30-11.00	hellebb@student.matnat.uio.no

30 min break

27/05/2011

11.00-11.30	Ingunn Sandberg
11.30-12.00	ingunsan@student.matnat.uio.no

11.30-12.00	Christoffer Hirth
12.00-12.30	chrishir@student.matnat.uio.no

12.00-12.30	Even Sogn Andersen
12.30-13.00	evenandersen@gmail.com

12.30-13.00	Thomas Neset Sky
13.00-13.30	thomasky@student.matnat.uio.no