# Curriculum of GEF4230:
# Numerical atmosphere and ocean models

Curriculum is the "Course material" that you find on the web pages with the exceptions mentioned below. You find the course material on the web pages, that is, http://www.uio.no/studier/emner/matnat/geofag/GEF4230/h07/.

## Course material

1. Lecture notes (draft)
2. General vertical coordinates (more)
3. Non-linear instability (more)
4. Spectral Method (draft)
5. Computer problems (draft)

## Important notes

This is a course in *numerical methods*. On the exam we do not require the students to remember continuous equations or lengthy derivations of such equations. We *do require though* that the students are well versed in how to establish numerical algorithms, how to analyse their numerical stability, knowledge about numerical consistency, why one method works while other methods do not , and so on.

## Exceptions

1. Section 4.7 Flux correction: Minimizing numerical diffusion
2. Section 7.5: Weakly reflective OBC
3. Spectral Methods, "Spherical harmonics": As above we do not require that you can write down the equations. But you should be able to explain to us the fact that when writing the equations with coordinates suitable for the globe (spherical coordinates), the spherical harmonics are eigenfunctions of the Laplacian operator and that they have analytical formulations for the derivatives in the east-west and north-south direction so that horizontal derivatives may be computed exactly.

Blindern December 10, 2007

Lars Petter Røed (sign) og Thor Erik Nordeng (sign)