

Curriculum for GEOF213

Dynamics of the Atmosphere and Ocean

Book:

Cushman-Roisin, B. and Beckers, J.-M., 2011: Introduction to Geophysical Fluid Dynamics: Physical and Numerical Aspects, Academic Press, ISBN 9780120887590

Chapter	Sections	# lectures	Note
1. Introduction	1.1 – 1.7		Reading
2. The Coriolis Force	2.1 – 2.5		Repetition
3. Equations of Fluid Motion	3.1 – 3.8		Repetition
4. Equations Governing Geophysical Flows	4.1 – 4.6		Repetition
7. Geostrophic Flows and Vorticity Dynamics	7.1 – 7.5		Repetition
8. The Ekman Layer	8.1– 8.7		
9. Barotropic Waves	9.1 – 9.6		
10. Barotropic Instability	10.1 – 10.4		
11. Stratification	11.1 – 11.3, 11.5, 11.6		
12. Layered Models	12.1 – 12.4, 12.6		
13. Internal Waves	13.1 – 13.5		
15. Dynamics of Stratified Rotating Flows	15.1 – 15.3		
16. Quasi-Geostrophic Dynamics	16.1 – 16.5		
17. Instabilities of Rotating Stratified Fluids	17.1 – 17.6		

Kundu, P. & Cohen I. Fluid mechanics

8.3-4 : Dimensional analysis