

INTERNATIONAL GEOPHYSICS SERIES

VOL. 101

Introduction to
**GEOFYSICAL
FLUID DYNAMICS**

PHYSICAL AND NUMERICAL ASPECTS

SECOND EDITION

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Curriculum - GEOF213-Fall 2017

Dynamics of the Atmosphere and Ocean

Textbook:

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

Supplement:

Gill, A (1982). Atmosphere-Ocean Dynamics (Copies of Chap 5-6)

Weber, J.E. (2004). Dynamic Oceanography (compendium)

Chapter	Sections	# lectures	Note
1. Introduction	1.1 – 1.7		Reading
2. The Coriolis Force	2.1 – 2.5 (Suppl. Kundu)		Repetition
3. Equations of Fluid Motion	3.1 – 3.7		Repetition
4. Equations Governing Geophysical Flows	4.1 - 4.6		Repetition
7. Geostrophic Flows and Vorticity Dynamics	7.1 – 7.4		
8. The Ekman Layer	8.2 – 8.6		
9. Barotropic Waves	9.1 – 9.6. Suppl. Gill Chap. 5; Weber 1.		
10. Barotropic Instability	10.1 – 10.3		Cursory
11. Stratification	11.1 – 11.3,		
12. Layered Models	12.1 -- 12.2 (cursory), 12.4, 12.6		
13. Internal Waves	13.1 – 13.5	Suppl. Gill Chap. 6	
15. Dynamics of Stratified Rotating Flows	15.1 – 15.3		
16. Quasi-Geostrophic Dynamics	16.1 – 16.5		
Baroclinic Instability (first edition Chap 16)	16.1 - 16.2		Cursory