

# Mathematics, Module I: Analysis in the Euclidean space

Instructor: Marina Pireddu, [marina.pireddu@unimib.it](mailto:marina.pireddu@unimib.it)

## Syllabus

Topics	References
Derivatives, differentials and tangent spaces	SB: 14.1, 14.2, 14.4
Directional derivatives and gradients	SB: 14.5, 14.6
Jacobians, higher-order derivatives and Hessians	SB: 14.7, 14.8
Taylor expansion	SB: 30.2, 30.3
Implicit Function Theorem	SB: 15.1, 15.2, 15.3
Convexity, concavity and quasiconcavity	SB: 3.2, 21.1, 21.2, 21.3; MWG: M.C

## References

Carl P. Simon and Lawrence Blume (SB), *Mathematics for Economists*. W.W. Norton & Company, 1994.

Andreu Mas-Colell, Michael D. Whinston and Jerry R. Green (MWG), *Microeconomic Theory*. Oxford University Press, 1995.