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			authors	• Giovanni Leoni	NOT DUPLICATES	439
			title	A First Course in Fractional Sobolev Spaces		
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			id	id7609678708698957203		
			abstract	This book provides a gentle introduction to fractional Sobolev spaces, which play a central role in the calculus of variations, partial differential equations, and harmonic analysis. The first part deals with fractional Sobolev spaces of one variable. It covers the definition, standard properties, extensions, embeddings, Hardy inequalities, and interpolation inequalities. The second part deals with fractional Sobolev spaces of several variables. The author studies completeness, density, homogeneous fractional Sobolev spaces, embeddings, necessary and sufficient conditions for extensions, Gagliardo-Nirenberg type interpolation inequalities, and trace theory. The third part explores some applications: interior regularity for the Poisson problem with the right-hand side in a fractional Sobolev space and some basic properties of the fractional Laplacian. The first part of the book is accessible to advanced undergraduates with a strong background in integration theory; the second part to graduate students having familiarity with measure and integration and some functional analysis. Basic knowledge of Sobolev spaces would help, but is not necessary. The book can also serve as a reference for mathematicians working in the calculus of variations and partial differential equations as well as for researchers in other disciplines with a solid mathematics background. It contains several exercises and is self-contained.		
			versions			

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