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Sommario/riassunto	This book provides an introduction to the broad topic of the calculus of variations. It addresses the most natural questions on variational problems and the mathematical complexities they present. Beginning with the scientific modeling that motivates the subject, the book then tackles mathematical questions such as the existence and uniqueness of solutions, their characterization in terms of partial differential equations, and their regularity. It includes both classical and recent results on one-dimensional variational problems, as well as the adaptation to the multi-dimensional case. Here, convexity plays an important role in establishing semi-continuity results and connections

with techniques from optimization, and convex duality is even used to produce regularity results. This is then followed by the more classical Hölder regularity theory for elliptic PDEs and some geometric variational problems on sets, including the isoperimetric inequality and the Steiner tree problem. The book concludes with a chapter on the limits of sequences of variational problems, expressed in terms of -convergence. While primarily designed for master's-level and advanced courses, this textbook, based on its author's instructional experience, also offers original insights that may be of interest to PhD students and researchers. A foundational understanding of measure theory and functional analysis is required, but all the essential concepts are reiterated throughout the book using special memo-boxes.