Her family attended a Reform synagogue in Chicago, and she described herself as having been atheist around that time. Ruttenberg later became a part of the Conservative movement within Judaism.

When she was in college her mother died of breast cancer, and Ruttenberg reconsidered religion, practiced Jewish mourning rituals, which she said allowed her to "make friends with Judaism, to be open to it"; in 2008 she published a memoir of her spiritual awakening titled Surprised by God: How I Learned To Stop Worrying and Love Religion (Beacon Press). This memoir was a finalist for the Sami Rohr Prize for Jewish Literature.

She was ordained in 2008 by the Ziegler School of Rabbinic Studies in Los Angeles.

In 2016, she published Nurture the Wow: Finding Spirituality in the Frustration, Boredom, Tears, Poop, Desperation, Wonder, and Radical Amazement of Parenting with Flatiron Books, which was named a National Jewish Book Award finalist and a PJ Library Parents' Choice selection.

Ruttenberg is the editor of the 2001 anthology Yentl's Revenge: The Next Wave of Jewish Feminism and the 2009 anthology The Passionate Torah: Sex and Judaism. She is also a contributing editor to Lilith and Women in Judaism. She and Rabbi Elliot Dorff are co-editors of three books for the Jewish Publication Society's Jewish Choices/Jewish Voices series: "Sex and Intimacy", "War and National Security", and "Social Justice". She served as the Senior Jewish Educator at Tufts University Hillel, and subsequently Campus Rabbi at Northwestern Hillel and Director of Education for the campus dialogue program Ask Big Questions. She served as Rabbi in Residence for Avodah.

In 2022, Ruttenberg published On Repentance and Repair: Making Amends in an Unapologetic World.