

Developer of modern Algebra

# Emmy Noether

[ 23 March 1882 - 14 April 1935 ]



## Special Scientific Achievements

Some terms and vocabulary of physical and mathematical technical literature are named after her work (*Noether modules*, *Noether rings*). Emmy Noether primarily dedicated herself to the development of modern *algebra*.

It is thanks to her ground work that *algebra* became a prominent world-wide research topic in mathematics.

**1882** Amalie Emmy Noether is born in the city of Erlangen, to Jewish parents, on March 23. Her father is a professor of mathematics.

**1900** As there is no high school for women, she goes to the Higher Women's School, and takes the state examination to become a teacher of French and English.

**1900 - 1903** Without a high-school graduation, Emmy Noether attends the University of Erlangen as a guest. This is the only status allowed for women.

**1903** She acquires her high-school graduation as a private student, and with it, the right to matriculation.

**1903 - 1907** Emmy Noether studies mathematics in Erlangen and quickly finishes her studies *summa cum laude*.

**1907 - 1915** She works privately as a scientist, providing research assistance for faculty and graduate students – all without a working contract or payment. Nevertheless, her scientific expertise soon grows. As the first female faculty member, she lectures in a variety of mathematical subjects.

**1909** Likewise, Emmy Noether becomes the first female member of the German Mathematic Society. Her lectures increasingly attract attention in the professional scientific community.

**1915** Emmy Noether goes to the Institute of Mathematics in Göttingen. Felix Klein and David Hilbert, famous luminaries, support her in her research work. Nevertheless, she is refused the possibility of making scientific career in research on her own; Prussian law does not permit women to habilitate. She continues to work, without a contract and free of charge. Highly impressed with her work, Albert Einstein tries to use his influence to her benefit – in vain.

**1919** After women are given the right to vote in the Weimar Republic, Emmy Noether finally receives permission to teach at German universities.

**1920 - 1923** She continues to work, unpaid, as a private lecturer in Göttingen, and publishes her work, establishing her recognition in the elite mathematic community.

**1922** Emmy Noether receives the title of Adjunct Professor of Algebra, which is still unaccompanied by income.

**1923** At 41, for the first time, she receives a contract with a modest remuneration.

**1923 - 1933** Emmy Noether strengthens her position in the world of professional academics. She becomes a guest professor in Moscow (1928 - 1929), receives the renowned *Ackermann-Teubner-Preis* (1932), and publishes numerous works.

**1933 - 1935** After the National Socialists seize power in Germany, Emmy Noether is forced out of her position on anti-Semitic grounds, and her teaching permission is rescinded. She emigrates to the USA, where she teaches at an American Women's College, and holds lectures at the Institute for Advanced Physics.

**1935** Emmy Noether dies on April 14 as a result of complications following surgery.