



## NOBEL PRIZES 2018

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The will of the Swedish scientist Alfred Nobel established the five Nobel prizes in 1895.

- The Nobel Prizes are a set of recognition given to fields of Chemistry, Literature, Peace, Physics, and Physiology or Medicine by The Nobel Foundation.
- The Nobel Foundation is a private institution established in 1900, has ultimate responsibility for fulfilling the intentions in Alfred Nobel's will.
- The prizes in Chemistry, Literature, Peace, Physics, and Physiology or Medicine were first awarded in 1901.

### Who selects the Nobel Laureates?

- In his last will and testament, Alfred Nobel specifically designated the institutions responsible for the prizes he wished to be established:
  - The Royal Swedish Academy of Sciences for the Nobel Prize in Physics and Chemistry,
  - Karolinska Institutet for the Nobel Prize in Physiology or Medicine,
  - The Swedish Academy for the Nobel Prize in Literature, and
  - A Committee of five persons to be elected by the Norwegian Parliament (Storting) for the Nobel Peace Prize.
- In 1968, the Sveriges Riksbank established the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel.  
The Royal Swedish Academy of Sciences was given the task to select the Laureates in Economic Sciences starting in 1969.
- While the five Nobel Prizes are based on a fund set up from the wealth bequeathed by Alfred Nobel, the Economic Prize is based on a donation received by the Nobel Foundation in 1968 from Sveriges Riksbank.

### Nobel Prize in Medicine

- The 2018 Nobel Prize in Physiology or Medicine has been jointly awarded to James P. Allison from the US and Tasaku Honjo from Japan.

- By stimulating the inherent ability of our immune system to attack tumor cells Nobel Laureates established an entirely **new principle for cancer therapy**.
- Tasuku Honjo discovered a protein on immune cells and revealed that it also operates as a break, but with a different mechanism of action.
- James P. Allison studied a **protein that functions as a brake on the immune system**. He realized the potential of releasing the brake and unleashing our immune cells to attack tumors. He developed this concept into a new approach for treating patients.

## Nobel Prize in Physics

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- **Three scientists Arthur Ashkin of the U.S., Gerard Mourou of France and Donna Strickland of Canada won the Nobel Physics Prize.**
- Mr. Ashkin, 96, was honored for his invention of “**optical tweezers**” that grab particles, atoms, viruses and other living cells with their laser beam fingers.
- He is the oldest winner of a Nobel prize.
- In 1987 Mr. Ashkin used the tweezers to capture living bacteria without harming them.
- Mr. Mourou and Ms. Strickland won for helping develop a method to generate **ultra-short optical pulses**, “the shortest and most intense laser pulses ever created by mankind”.
- Mrs. Strickland is the third women ever and the first woman in 55 years to receive the prestigious award.
- Their technique is now used in corrective eye surgery and in making surgical stents. Recently, attosecond lasers have even made it possible to observe individual electrons.

## Nobel Prize in Chemistry

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- **Ms. Frances Arnold US, Mr. George Smith, both from the US and Mr. Gregory Winter of Britain were awarded the prize for pioneering science in enzymes and antibodies.**
- For the first time, scientists **harnessed the power of evolution to produce novel proteins** used in everything from environmentally friendly detergents and biofuels to cancer drugs.
- Ms. Arnold is the fifth woman to win a chemistry Nobel. Her research on enzymes led to the development of better industrial chemicals and pharmaceuticals.
- Mr. Smith developed a method using a virus that infects bacteria to produce new proteins while Mr. Winter used the same technique for the directed evolution of antibodies

## Nobel Peace Prize

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- Who is awarded?

“to the person who shall have done the most or the best work for fraternity between nations, the abolition or reduction of standing armies and for the holding and promotion of peace congresses.” (Excerpt from the will of Alfred Nobel)
  - The Nobel Peace Prize for 2018 has been awarded to **Congolese gynecologist Dr. Denis Mukwege and Yazidi human rights activist Nadia Murad** for their efforts to end the use of sexual violence as a weapon of war and armed conflict.
  - Dr. Denis Mukwege has helped in the treatment of women who were raped by rebels during the civil war in Democratic Republic of Congo.
  - Ms. Murad is one of an estimated 3,000 Yazidi girls and women who were victims of rape and other abuses by the Islamic State.

## Nobel Memorial Prize in Economic Sciences

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- Who is awarded?

The Nobel memorial prize in economics sciences rewards the design of methods that address pressing issues of our time: sustainable growth in the global economy and welfare.
- **William Nordhaus and Paul Romer**, from the US, won the 2018 Nobel Economics Prize for work in integrating climate change and technological innovation into economic analysis,
- William D. Nordhaus was awarded for **integrating climate change into the long-run macroeconomic analysis**.
- William Nordhaus was the first person to create a quantitative model that described the interplay between the economy and the climate.
- Paul M. Romer **integrated technological innovations into the long-run macroeconomic analysis**.
- Paul Romer has shown how economic forces govern the willingness of firms to produce new ideas and innovations, laying the foundations for a new model for development, known as endogenous growth theory.

## Nobel Prize in Literature Controversy

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- In 2018, the Nobel Prize for literature was not awarded due to allegations of sexual misconduct on Frenchman Jean-Claude Arnault, married to an Academy member, and the head of an influential cultural club in Stockholm.
- An internal Academy probe also revealed conflicts of interest between him and the institution, which had funded his club for years.
- There were also allegations of financial malpractice and repeated leaks
- The Academy has been deeply divided over how to deal with Arnault and on the reforms, it needs to undertake.

- Paralyzed and ridiculed around the world the Academy announced in May that it would postpone by one year the 2018 Nobel Literature Prize, a first in 70 years.