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Hidden Figures

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This article is about the film. For the book on which it is based, see Hidden Figures (book).

Hidden Figures is a 2016 American biographical drama film directed by Theodore Melfi and written by Melfi and Allison Schroeder, based on the non-fiction book of the same name by Margot Lee Shetterly about black female mathematicians who worked at the National Aeronautics and Space Administration (NASA) during the Space Race. The film stars Taraji P. Henson as Katherine Johnson, a mathematician who calculated flight trajectories for Project Mercury and other missions. The film also features Octavia Spencer as NASA supervisor Dorothy Vaughan and Janelle Monáe as NASA engineer Mary Jackson, with Kevin Costner, Kirsten Dunst, Jim Parsons, Glen Powell, and Mahershala Ali in supporting roles.

Principal photography began in March 2016 in Atlanta and was wrapped up in May 2016. Hidden Figures was released on December 25, 2016, by 20th Century Fox, received positive reviews from critics and grossed \$235 million worldwide. It was chosen by National Board of Review as one of the top ten films of 2016^[4] and was nominated for numerous awards, including three Oscar nominations (Best Picture, Best Adapted Screenplay and Best Supporting Actress for Spencer) and two Golden Globes (Best Supporting Actress for Spencer and Best Original Score). It won the Screen Actors Guild Award for Outstanding Performance by a Cast in a Motion Picture.

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Plot [edit]

In 1961, mathematician Katherine Goble works as a human computer in the segregated division West Area Computers of the Langley Research Center in Hampton, Virginia, alongside her colleagues, aspiring engineer Mary Jackson and their unofficial acting-supervisor Dorothy Vaughan.

Following the successful Soviet launch of Yuri Gagarin, pressure to send American astronauts into space increases. Supervisor Vivian Mitchell assigns Katherine to assist Al Harrison's Space Task Group, given her skills in analytic geometry. She becomes the first black woman on the team; and in the building, which has no bathrooms for non-white people.

Katherine's new colleagues are initially dismissive and demeaning, especially head

engineer Paul Stafford. Meanwhile, Mitchell informs Dorothy that she will not be promoted as the bureaucracy is not planning to assign a "permanent supervisor for the colored group". Mary is assigned to the space capsule heat shield team, and immediately identifies a flaw in the experimental space capsule's heat shields. With encouragement from the team leader, a Polish Jewish Holocaust survivor, she submits an application for an official NASA engineer position and begins to pursue an engineering degree more assertively.

At a church barbecue, widow Katherine meets National Guard Lt. Col. Jim Johnson, and they are attracted to each other, but she is disappointed when he voices skepticism about women's mathematical abilities. He later apologizes, and begins spending time with Katherine and her three daughters.

When Harrison invites his subordinates to solve a complex mathematical equation, Katherine develops the solution, leaving him impressed. The Mercury 7 astronauts visit Langley and astronaut John Glenn is cordial to the West Area Computers.





Theatrical release poster

Directed by Theodore Melfi Donna Gigliotti Produced by Peter Chernin

Jenno Toppina **Pharrell Williams** Theodore Melfi

Allison Schroeder Screenplay by Theodore Melfi

Based on Hidden Figures by Margot Lee Shetterly

Taraji P. Henson Starring

Octavia Spencer Janelle Monáe **Kevin Costner** Kirsten Dunst Jim Parsons

Music by Hans Zimmer **Pharrell Williams**

Benjamin Wallfisch Cinematography Mandy Walker Edited by Peter Teschner

Production Fox 2000 Pictures company Chernin Entertainment Levantine Films

Distributed by 20th Century Fox Release date December 10, 2016

> (SVA Theatre) December 25, 2016

127 minutes^[1] Running time

United States Country English Language

\$25 million^{[2][3]} Budget Box office \$235.5 million^[2]



Katherine becomes better acquainted with her colleagues. Harrison finds Katherine not at her desk one day, and is enraged when she explains that she must walk a half-mile (800 meters) away to another building to use the colored people's bathroom. Harrison abolishes bathroom segregation, personally knocking down the "Colored Bathroom" sign. Regardless of Stafford's objections, Harrison allows Katherine to be included in their meetings, in which she creates an elaborate equation to guide the space capsule into a safe re-entry. Despite this, Katherine is forced to remove her name from all the reports, which are credited solely to Stafford. Meanwhile, Mary goes to court and convinces the judge to grant her permission to attend night classes in an all-white school to obtain her engineering degree.

Dorothy learns of the impending installation of an IBM 7090 electronic computer that will replace her co-workers. She visits the computer room to learn about it and successfully starts the machine. Later, she visits a public library, where the librarian scolds her for visiting the whites-only section, to borrow a book about FORTRAN. While congratulating Dorothy on her work, Mitchell assures her that she never treated her differently due to the color of her skin; Dorothy is unconvinced. After teaching herself FORTRAN and training her West Area co-workers, she is officially promoted to supervise the Programming Department for the IBM, bringing 30 of her co-workers to do the programming. Mitchell eventually addresses Dorothy as "Mrs. Vaughan," indicating her new-found respect.

As the final arrangements for John Glenn's launch are made, Katherine is informed she is no longer needed at Space Task Group and is being reassigned back to West Area Computers. As a wedding and farewell gift from her colleagues (Katherine is now married to Jim Johnson), Harrison buys her a pearl necklace, the only jewelry allowed under the dress code.

The day of the launch, discrepancies arise in the IBM 7090 calculations for the capsule's landing coordinates, and Astronaut Glenn requests that Katherine be called in to check the calculations. Katherine quickly does so, only to have the door slammed in her face after delivering the results to the control room. However, Harrison gives her a security pass to the control room so they can relay the results to Glenn together. Stafford, showing a change of heart, brings Katherine a cup of coffee when she is brought in to relay the results.

After a successful launch and orbit, the space capsule has a warning light indicating a heat shield problem. Mission control decides to land it after three orbits instead of seven. Katherine understands the situation and concurs that they should leave the retro-rocket attached to heat shield for reentry to which Harrison agrees immediately. Their instructions prove correct and Friendship 7 successfully lands in the ocean.

Following the mission, the mathematicians are laid off and ultimately replaced by electronic computers. Katherine is reassigned to the Analysis and Computation Division, Dorothy continues to supervise the Programming Department, and Mary obtains her engineering degree and gains employment at NASA as an engineer.

An epilogue reveals that Katherine calculated the trajectories for the Apollo 11 and Space Shuttle missions. In 2015 she was awarded the Presidential Medal of Freedom. The following year, NASA dedicated the Langley Research Center's Katherine G. Johnson Computational Building in her honor.

Cast [edit]

- . Taraji P. Henson as Katherine Goble Johnson, mathematician
- Octavia Spencer as Dorothy Vaughan, mathematician and supervisor
- Janelle Monáe as Mary Jackson, who becomes an engineer
- Kevin Costner as Al Harrison, director of the Space Task Group
- . Kirsten Dunst as Vivian Mitchell, supervisor
- . Jim Parsons as Paul Stafford, head engineer in STG
- . Glen Powell as John Glenn, astronaut
- . Mahershala Ali as Jim Johnson, military officer who romances and eventually marries Katherine
- Karan Kendrick as Young Joylette Coleman, mother of Young Katherine Goble Johnson

- Donna Biscoe as Joylette Coleman, Katherine's mother, who helps care for her children
- . Rhoda Griffis as White Librarian
- . Maria Howell as Ms. Summer
- . Aldis Hodge as Levi Jackson
- . Paige Nicollette as Eunice Smith
- . Gary Weeks as Reporter at Press Conference
- . Saniyya Sidney as Constance Johnson
- . Zani Jones Mbayise as Kathy Johnson
- . Kimberly Quinn as Ruth
- Olek Krupa as Karl Zielinski, engineer who encourages Mary Jackson

Production [edit]

On July 9, 2015, it was announced that producer Donna Gigliotti had acquired Margot Lee Shetterly's nonfiction book *Hidden Figures*, about a group of black female mathematicians that helped NASA win the Space Race. [5] Allison Schroeder wrote the script, which was developed by Gigliotti through Levantine Films. Schroeder grew up by Cape Canaveral and her grandparents worked at NASA, where she also interned as a teenager, and as a result saw the project as a perfect fit for herself. [6] Levantine Films produced the film with Peter Chernin's Chernin Entertainment. Fox 2000 Pictures acquired the film rights, and Theodore Melfi signed on to direct. [5] After coming aboard, Melfi revised Schroeder's script, and in particular focused on balancing the home lives of the three protagonists with their careers at NASA. [6] After the film's development was announced, actresses considered to play the black female roles included Oprah Winfrey, Viola Davis, Octavia Spencer, and Taraji P. Henson. [5]

Chernin and Jenno Topping produced, along with Gigliotti and Melfi.^[7] On February 10, 2016, Fox cast Henson to play the lead role of mathematician Katherine Goble Johnson. On February 17, Spencer was selected to play Dorothy Vaughan, one of the three lead mathematicians at NASA.^[8] On March 1, 2016, Kevin Costner was cast in the film to play the fictional head of the space program.^[9] Singer Janelle Monáe signed on to play the third lead mathematician, Mary Jackson.^[10] Later the same month, Kirsten Dunst, Glen Powell, and Mahershala Ali were cast in the film: Powell to play astronaut John Glenn,^[11] and Ali as Johnson's love interest.^[12][13]

Principal photography began in March 2016 on the campus of Morehouse College in Atlanta, Georgia. [14] Filming also took place at Lockheed Martin Aeronautics at Dobbins Air Reserve Base. [15] On April 1, 2016, Jim Parsons was cast in the film to play the head

engineer of the Space Task Group at NASA, Paul Stafford.^[11] In April 2016, Pharrell Williams came on board as a producer on the film. He also wrote original songs and handled the music department and soundtrack of the film, with Hans Zimmer and Benjamin Wallfisch.^[16] Morehouse College mathematics professor Rudy L. Horne brought in to be the on-set mathematician.

Historical accuracy [edit]



This section may contain an excessive amount of intricate detail that may only interest a specific audience. Please help by spinning off or relocating any relevant information, and removing excessive detail that may be against Wikipedia's inclusion policy. (April 2017) (Learn how and when to remove this template message)

The film, set at NASA in 1961, depicts segregated facilities such as the West Area Computing unit, where an all-black group of female mathematicians were originally required to use separate dining and bathroom facilities. However, in reality, Dorothy Vaughan was promoted to supervisor of West Computing in 1949, becoming the first black supervisor at the National Advisory Committee for Aeronautics (NACA) and one of the few female supervisors. In 1958, when NACA made the transition to NASA, segregated facilities, including the West Computing office, were abolished. Dorothy Vaughan and many of the former West Computers transferred to the new Analysis and Computation Division (ACD), a racially and gender-integrated group.^[17]

Mary Jackson was the one who had to find her own way to a colored bathroom, which did exist on the East Side. [18] Katherine (then Goble) was originally unaware that the East Side bathrooms were segregated, and used the unlabeled "whites-only" bathrooms for years before anyone complained. [19] She ignored the complaint, and the issue was dropped. [20] In an interview with WHRO-TV, Katherine Johnson played down the feeling of segregation. "I didn't feel the segregation at NASA, because everybody there was doing research. You had a mission and you worked on it, and it was important to you to do your job...and play bridge at lunch. I didn't feel any segregation. I knew it was there, but I didn't feel it."[21]

Mary Jackson did not have to get a court order to attend night classes at the whites-only high school. She asked the city of Hampton for an exception, and it was granted. The school turned out to be run down and dilapidated, a hidden cost of running two parallel school systems. [22] She completed her engineering courses and earned a promotion to engineer in 1958. [23]

Katherine Goble/Johnson carpooled with Eunice Smith, a nine-year West End computer veteran at the time Katherine joined NACA. Smith was her neighbor and friend from sorority and church choir.^[24] The three Goble children were teenagers at the time of Katherine's marriage to Jim Johnson.^[25]

Katherine Goble/Johnson was assigned to the Flight Research Division in 1953, a move that soon became permanent. When the Space Task Group was created in 1958, engineers from the Flight Research Division formed the core of the Group, and Katherine moved along with them. She coauthored a research report in 1960, the first time a woman in the Flight Research Division had received credit as an author of a research report.^[26]

Katherine gained access to editorial meetings as of 1958 simply through persistence, not because one particular meeting was critical.[27][28]

The Space Task Group was led by Robert Gilruth, not the fictional character Al Harrison, who was created to simplify a more complex management structure.

The scene where Harrison smashes the Colored Ladies Room sign never happened, as in real life Katherine refused to walk the extra distance to use the colored bathroom and, in her words, "just went to the White one". [29] Harrison also lets her into Mission Control to witness the launch. Neither scene happened in real life, and screenwriter Theodore Melfi said he saw no problem with adding the scenes, "There needs to be white people who do the right thing, there needs to be black people who do the right thing, and someone does the right thing. And so who cares who does the right thing, as long as the right thing is achieved?" Dexter Thomas of *Vice News* criticized Melfi's additions as creating the white savior trope, "In this case, it means that a white person doesn't have to think about the possibility that, were they around back in the 1960s South, they might have been one of the bad ones." [30] *The Atlantic*'s Megan Garber said that the film's "narrative trajectory" involved "thematic elements of the white savior". [31] Melfi said he found "hurtful" the "accusations of a 'white savior' storyline", saying, "It was very upsetting to me because I am at a place where I've lived my life colorless and I grew up in Brooklyn. I walked to school with people of all shapes, sizes, and colors, and that's how I've lived my life. So it's very upsetting that we still have to have this conversation. I get upset when I hear 'black film,' and so does Taraji P. Henson... It's just a film. And if we keep labeling something 'a black film,' or 'a white film'— basically it's modern day segregation. We're all humans. Any human can tell any human's story. I don't want to have this conversation about black film or white film anymore. I wanna have conversations about film."

The Huffington Post's Zeba Blay said of Melfi's frustration, "His frustration is also a perfect example of how, when it comes to open dialogue about depictions of people of color on screen, it behooves white people (especially those who position themselves as 'allies') to listen... the inclusion of the bathroom scene doesn't make Melfi a bad filmmaker, or a bad person, or a racist. But his suggestion that a feel-good scene like that was needed for the marketability and overall appeal of the film speaks to the fact that Hollywood at large still has a long way to go in telling black stories, no matter how many strides have been made." [32]

The fictional characters Vivian Mitchell and Paul Stafford are composites of several team members, and reflect common social views and attitudes of the time. Karl Zielinski is based on Mary Jackson's mentor, Kazimierz "Kaz" Czarnecki. [33]

John Glenn, who was about a decade older than depicted at the time of launch, did ask specifically for Johnson^[34] to verify the IBM calculations, although she had several days before the launch date to complete the process.^[35]

The author Margot Lee Shetterly has agreed that there are differences between her book and the movie, but found that to be understandable.

For better or for worse, there is history, there is the book and then there's the movie. Timelines had to be conflated and [there were] composite characters, and for most people [who have seen the movie] have already taken that as the literal

fact. ... You might get the indication in the movie that these were the only people doing those jobs, when in reality we know they worked in teams, and those teams had other teams. There were sections, branches, divisions, and they all went up to a director. There were so many people required to make this happen. ... It would be great for people to understand that there were so many more people. Even though Katherine Johnson, in this role, was a hero, there were so many others that were required to do other kinds of tests and checks to make [Glenn's] mission come to fruition. But I understand you can't make a movie with 300 characters. It is simply not possible. [36]

John Glenn's flight was not terminated early as incorrectly stated in the movie's closing subtitles. The MA-6 mission was planned for three orbits and landed at the expected time. The press kit published before launch states that "The Mercury Operations Director may elect a one, two or three orbit mission." [37] The post mission report also shows that retrofire was scheduled to occur on the third orbit. [38] Scott Carpenter's subsequent flight in May was also scheduled and flew for three orbits, and Walter Schirra's planned six orbit flight in October required extensive modifications to the Mercury capsule's life support system to allow him to fly a nine hour mission. [39] The phrase "go for at least seven orbits" that is in the mission transcript refers to the fact that the Atlas booster had placed Glenn's capsule into an orbit that would be stable for at least seven orbits, not that he had permission to stay up that long.

The Mercury Control Center was located at Cape Canaveral, Florida, not at the Langley Research Center in Virginia. The orbit plots displayed in the front of the room incorrectly show a six orbit mission, which did not happen until Walter Schirra's MA-8 mission in October 1962. The movie also incorrectly shows NASA flight controllers monitoring live telemetry from the Soviet Vostok launch, which the Soviet Union would not have been sharing with NASA in 1961.

Katherine Johnson's Technical Note D-233, co-written with T.H. Skopinski, can be found on the NASA Technical Reports Server. [40]

Release [edit]

The film began a limited release on December 25, 2016, before a wide release on January 6, 2017. [41][42]

Box office [edit]

Hidden Figures grossed \$169.4 million in the United States and Canada, and \$65.2 million in other territories, for a worldwide gross of \$235.5 million, against a production budget of \$25 million. Domestically, Hidden Figures was the highest-grossing Best Picture nominee at the 89th Academy Awards. Deadline Hollywood calculated the net profit of the film to be \$95.55 million, when factoring together all expenses and revenues for the film, making it one of the top twenty most profitable release of 2016.



US President Barack Obama greeting Kevin Costner, Octavia Spencer, and Taraji P. Henson on December 15, 2016

During its limited release in 25 theaters from December 25, 2016 to January 5, 2017, the film grossed \$3 million. [45] In North America, *Hidden Figures* had its expansion alongside the opening of *Underworld: Blood Wars* and the wide expansions of *Lion* and *A Monster Calls*. It was expected to gross around \$20 million from 2,471 theaters in its opening weekend, with the studio projecting a more conservative \$15–17 million debut. [46] It made \$1.2 million from Thursday night previews and \$7.6 million on its first day. Initially, projections had the film grossing \$21.8 million in its opening weekend, finishing second behind *Rogue One: A Star Wars Story* (\$22 million). Final figures revealed the film tallied a weekend total of \$22.8 million, beating *Rogue One*'s \$21.9 million. [47] In its second weekend, the film grossed \$20.5 million (for a four-day MLK Weekend total of \$27.5 million), again topping the box office. [48]

Critical response [edit]

Hidden Figures received positive reviews from critics. On review aggregator website Rotten Tomatoes, the film has an approval rating of 92%, based on 234 reviews, with an average score of 7.6/10. The site's critical consensus reads, "In heartwarming, crowd-pleasing fashion, Hidden Figures celebrates overlooked—and crucial—contributions from a pivotal moment in American history."^[49] On Metacritic, the film has a score of 74 out of 100, based on 47 critics, indicating "generally favorable reviews".^[50] Audiences polled by CinemaScore gave the film an average grade of "A+" on an A+ to F scale, ^[51] one of fewer than 60 films in the history of the service to receive such a score.

Simon Thompson of IGN gave the film a rating of 9/10, writing, "Hidden Figures fills in an all too forgotten, or simply too widely unknown, blank in US history in a classy, engaging, entertaining and hugely fulfilling way. Superb performances across the board and a fascinating story alone make Hidden Figures a solid, an accomplished and deftly executed movie that entertains, engages and earns your time, money and attention."^[52] Ty Burr of The Boston Globe wrote, "the film's made with more heart than art and more skill than subtlety, and it works primarily because of the women that it portrays and the actresses who portray them. Best of all, you come out of the movie knowing who Katherine Johnson and Dorothy Vaughn and Mary Jackson are, and so do your daughters and sons."^[53]

Clayton Davis of Awards Circuit gave the film 3.5 stars, saying "Precisely marketed as terrific adult entertainment for the Christmas season, *Hidden Figures* is a faithful and truly beautiful portrait of our country's consistent gloss over the racial tensions that have divided and continue to plague the fabric our existence. Lavishly engaging from start to finish, *Hidden Figures* may be able to catch the most inopportune movie-goer off guard and cause them to fall for its undeniable and classic storytelling. The film is not to be missed."[54]

Other reviews criticized the film for its fictional embellishments and conventional, feel-good style. Tim Grierson, writing for Screen International, states that "Hidden Figures is almost patronisingly earnest in its depiction of sexism and racism. An air of do-gooder self-satisfaction hovers over the proceedings", while Jesse Hassenger at The A.V. Club comments that "lack of surprise is in this movie's bones." Eric John of IndieWire argues that the film "trivializes history; as a hagiographic tribute to its brilliant protagonists, it doesn't dig into the essence of their struggles" and similarly, Paul Byrnes concludes that "When a film purports to be selling history, we're entitled to ask where the history went, even if it offers a good time instead." [58]

Accolades [edit]

Main article: List of accolades received by Hidden Figures

Charity screenings [edit]

After *Hidden Figures* was released on December 25, 2016, certain charities, institutions and independent businesses who regard the film as relevant to the cause of improving youth awareness in education and careers in the science, technology, engineering, and mathematics (STEM) fields, organized free screenings of the film in order to spread the message of the film's subject matter. [59][60] A collaborative effort between Western New York STEM Hub, AT&T and the Girl Scouts of the USA allowed more than 200 Buffalo Public School students, Girl Scouts and teachers to see the film. WBFO's Senior Reporter Eileen Buckley stated the event was designed to help encourage a new generation of women to consider STEM careers. Research indicates that by the year 2020, there will be 2.4 millon unfilled STEM jobs. [61]

Also, the film's principal actors (Henson, Spencer, Monáe and Parsons), director (Melfi), producer/musical creator (Williams), and other non-profit outside groups have offered free screenings to *Hidden Figures* at several cinema locations around the world. Some of the screenings were open to all-comers, while others were arranged to benefit girls, women and the underprivileged. The campaign began as individual activism by Spencer, and made a total of more than 1,500 seats for *Hidden Figures* available, free of charge, to poor individuals and families. The end result was seven more screenings for people who otherwise might not have been able to afford to see the 20th Century Fox film - in Atlanta (sponsored by Monáe), in Washington, D.C. (sponsored by Henson), in Chicago (also Henson), in Houston (by Parsons), in Hazelwood, Missouri (by Melfi and actress/co-producer Kimberly Quinn), and in Norfolk and Virginia Beach, Virginia (both sponsored by Williams).^[62]

In February 2017, AMC Theatres and 21st Century Fox announced that free screenings of *Hidden Figures* would take place in celebration of Black History Month in up to 14 select U.S. cities (including Atlanta, Chicago, Dallas, Los Angeles and Miami). The statement described the February charity screenings as building broader awareness of the film's true story of black women mathematicians who worked at NASA during the Space Race. [63] 21st Century Fox and AMC Theatres also invited schools, community groups and non-profit organizations to apply for additional special screenings to be held in their towns. "As we celebrate Black History Month and look ahead to Women's History Month in March, this story of empowerment and perseverance is more relevant than ever," said Liba Rubenstein, 21st Century Fox's Senior Vice President of Social Impact, "We at 21CF were inspired by the grassroots movement to bring this film to audiences that wouldn't otherwise be able to see it - audiences that might include future innovators and barrier-breakers - and we wanted to support and extend that movement". [64]

Philanthropic non-profit outside groups and other local efforts by individuals have offered free screenings of *Hidden Figures* by using crowdfunding platforms on the Internet, that allow people to raise money for free film screening events. [65][66] Dozens of other GoFundMe free screening campaigns have appeared since the film's general release, all by people wanting to raise money to pay for students to see the film. [65]

Home media [edit]

Hidden Figures was released on Digital HD on March 28, 2017 and Blu-ray, 4K Ultra HD, and DVD on April 11, 2017. The film debuted at No. 3 on the home video sales chart. [68]

Merchandising [edit]

Following the 2017 *Lego Ideas Contest*, Denmark-based toy maker The Lego Group announced that will manufacture a fandesigned *Women of NASA* figurine set of five female scientists, engineers and astronauts, as based on real women who have worked for the NASA Space Agency. The minifigures set includes Katherine Johnson; as well as computer scientist Margaret Hamilton; astronaut, physicist and educator Sally Ride; astronomer Nancy Grace Roman; and astronaut and physician Mae Jemison (who is also African American). The *Women of NASA* set is scheduled to be available by late 2017 or early 2018.^{[69][70]}

See also [edit]

- . African-American women in computer science
- . Mathematical fiction
- . Women in science

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External links [edit]

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- . Hidden Figures ☑ at Rotten Tomatoes
- . Hidden Figures va at AllMovie
- . Hidden Figures va at History vs. Hollywood



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