

# Career Spotlight: Inside Actuarial Science

**Date :** January 17, 2018

How's this for an unexpected new-year trend: actuarial science.

Take, for instance, a January 2018 headline from *News24*, South Africa's largest digital publisher. Takalani Bambela from Limpopo's Tshivhase Secondary School near Johannesburg achieved the region's top score in math and science on his matric exam. Matriculation or matric is a term commonly used in South Africa to refer to the final year of high school and the qualification received on graduating from high school. Bambela told *News24* that he plans to study actuarial science at the University of Witwatersrand in Johannesburg, adding, "With actuarial science, I will be able to use the mathematical skills which I would have attained ... to help local businesses assess and manage the risks that they will encounter along the journey of their businesses. This will result in local businesses growing ... then there will be more inflow of money into our country resulting in our economy growing."

A world away near Philadelphia, Pennsylvania in the U.S., Michelle McGrath, a senior at Plymouth Whitemarsh High School, is on a similar career track. McGrath, who was recently accepted to the University of Pennsylvania, also plans to study actuarial science. "I discovered my desire to be an actuary when I enrolled in AP Statistics my junior year of high school," says McGrath, who this year is tackling AP Economics to further explore her interest in business. "I liked that there were a lot of real-world applications that we explored in statistics, which is not common for many math classes. I always knew that I wanted to major in something relating to math in college. Once my teacher mentioned being an actuary to the class, I explored the aspects of the job and thought it'd be the perfect major for me."

From Johannesburg to Philadelphia and beyond, actuarial science is in demand these days. The U.S. Bureau of Labor Statistics says that employment of actuaries is projected to grow 22% from 2016 to 2026, much faster than the average for all occupations. And actuaries often rank high on lists of top STEM careers, top-paying jobs and even best jobs for women.

With the help of Wharton's Actuarial Science department and trade groups like the Society of Actuaries (you can find both in the related links section of this article's toolbar), here are 10 facts about careers in actuarial science:

1. Actuaries measure and manage risk. Combining knowledge in math, statistics and business management, actuaries typically work for insurance companies, consulting firms and financial institutions.
2. Actuaries often talk about using their math and statistics skills to deal with "real-world" applications. The Society of Actuaries describes it like this: "We determine how much an insurance company should charge for auto insurance, taking into account many factors, such as the car that is being insured and details about the driver." Or this: "We develop life insurance products so that parents can enjoy adventurous recreational activities such as rock climbing while feeling secure that their children will be cared for in the event of an accident." Or this: "We assist banks in managing their assets and liabilities and develop ways to manage financial risk."
3. Put another way, actuaries stand at the intersection of risk and money. Undergraduates at Wharton learn, "Actuaries are experts in evaluating the likelihood and financial consequences of future events, designing creative ways to reduce the cost of undesirable events, and decreasing the impact of tragic events that do occur." Finance is a popular double-concentration for students pursuing an actuarial science degree.
4. Numbers are an actuary's crystal ball. "The main aspect of being an actuary that got me interested in this field is an actuary's ability to use numbers to predict the future," says McGrath. "Similar to how English is a language to many, math is also a language to actuaries. The numbers actually represent important information, and I'm excited to be able to figure out what these numbers mean."
5. Although insurance and financial institutions are top of mind for job-seeking actuaries, their skills and talents are

transferable to any industry that requires risk modeling and management, including: transportation, such as shipping and air travel; energy, such as utilities, oil and gas; and the environment, including climate change issues. “I would love to pursue using my actuarial knowledge to work in some way with sports analysis or statistics,” adds McGrath. “Although this is an untraditional application of actuarial science, there are actuaries who work in this field, and I believe that I would find this work compelling.”

6. Get ready to take some tests. Actuaries must pass seven professional exams while in school and during their careers in order to earn a fellowship certification. These tests are administered by the Society of Actuaries and the Casualty Actuarial Society. Upon completion of a Wharton undergrad degree in actuarial science, students are prepared to pass the first four professional exams.
7. Though it sounds like a solitary job, actuaries must embrace teamwork and collaboration. Since risk affects entire organizations, they need to be effective communicators with strong business and interpersonal skills.
8. Actuaries are immortalized in print and on the big screen. The original *Batman* comic series included a villainous character called “The Actuary,” a mathematical genius who used formulae to help the Penguin commit crimes. More recently in the 2016 movie *Zootopia*, the character Jaguar aspires to be an actuary.
9. If you want job security...Actuarial science often appears among the ranks of careers with guaranteed employment. When you consider how the job market can shift from freshman to senior year of college, it’s important to think about careers that are consistently in demand. In *U.S. News & World Report’s* 2017 ranking of 26 Jobs with the Most Job Security, actuaries (with a median annual salary of \$97,070) came in at No. 23.
10. Risk is a big business that may be getting bigger. Companies like Facebook are hiring risk experts, including actuaries, to figure out how all kinds of factors might impact their businesses, even things like the potential for cyberattacks. According to a recent article in *Inc.* magazine, “In the era of big-data analysis, flying blind is a gamble you don’t have to take.”