**What kind of job can I get with a major in mathematics?**

The shorts answer is: ***whatever job you want!*** Mathematics prepares you for a career in a diverse range of areas, and as science and technology become integrated into more and more aspects of our lives, employers are clamoring for employees with mathematical skills and problem-solving abilities.

Some careers that a math major is especially good preparation for are the following:

* **Professional Graduate Schools (such as Law School, Med School, or Business School)**. Graduate schools in all areas think math is a great major because it develops analytical skills and the ability to work in a problem-solving environment. The skills and experiences gained from a math major are useful in these careers, and consequently they rank high on the list of assets sought by graduate school admissions committees. In addition, a math major can often set you apart from other applicants to competitive programs, because admissions committees know that mathematics is a rigorous major that prepares students for the demands of their programs.
* **Jobs in Industry or the Private Sector**. There are numerous jobs in the private sector that desperately need math majors. Here is a short list of the careers that a math major is essential for.
  + [Actuarial Science](http://en.wikipedia.org/wiki/Actuary)
  + [Computer Analyst or programmer](http://en.wikipedia.org/wiki/Programmer)
  + [Economist](http://en.wikipedia.org/wiki/Economist)
  + [Engineering Analyst](http://en.wikipedia.org/wiki/Engineering)
  + [Information Scientist](http://www.prospects.ac.uk/cms/ShowPage/Home_page/Explore_types_of_jobs/Types_of_Job/p!eipaL?state=showocc&pageno=1&idno=338)
  + [Marketing Research Analyst](https://uwec.edu/career/Students/explore/Profiles/marketing%20research%20analyst.htm)
  + [Mathematician](http://stats.bls.gov/oco/ocos043.htm)
  + [Meteorologist](http://www.ametsoc.org/pubs/careers.html)
  + [Numerical Analyst](http://en.wikipedia.org/wiki/Numerical_analysis)
  + [Operations Research](http://en.wikipedia.org/wiki/Operations_research)
  + [Statistician](http://www.bls.gov/oco/ocos045.htm)
  + [Systems Analyst](http://www.bls.gov/k12/computers06.htm)

An important part of many mathematical careers is mathematical modeling. Whether these models are used to describe air flow over the wing of an airplane, traffic movement on highways, or the spread of diseases throughout a population, there are many ways in which a person with a mathematical background can contribute to the process.

* + One needs to construct the model and derives any equations used to study the physical phenomena of interest
  + One also needs to use or develop mathematical tools to analyze the model created.
  + Furthermore, one needs to give a physical interpretation to the results, and to analyze, draw conclusions, and make predictions using the model

Throughout all of this, one might also need to collect and organize data for analysis, and to analyze large amounts of data produced by the model. Different people may be used in different ways throughout the different steps of this process, but in all parts a solid mathematical background and good reasoning skills are crucial, and the tools one learns in a math major are essential.

* **Government Jobs**. The are a variety of government positions that require a mathematics degree. In particular, the [National Security Agency (NSA)](http://www.nsa.gov/) is the largest employer of mathematicians in the United States, and perhaps the world. Among other things, the NSA needs mathematicians to help create and break codes, analyze intelligence data, and perform signal analysis. The NSA looks for intelligent and imaginative thinkers who can contribute original ideas to the solution of many of our nation's most difficult problems. They hire people with a variety of technical degrees at all levels (undergraduate and graduate), and the pay and work conditions are often extremely good.
* **Mathematics Teacher, Mathematics Professor, or Professional Mathematician**. These are perhaps the most obvious careers that a math major can pursue, and the work in these jobs will be directly related to the math courses you take at UH. In addition, if you want to be a mathematics professor or a professional mathematician, you will need to go to graduate school in mathematics. The undergraduate mathematics program at UH is a wonderful preparation for mathematics graduate school, and can prepare you for continuing education at the best graduate programs in the nation. In addition, UH itself has an excellent graduate program, and offers several graduate math courses each semester. So if you're preparing for graduate school, you will have the opportunity to take graduate-level courses in you final year or two of undergraduate schooling, which will give you a significant head start when you start a graduate program.

In his recent book *The Jobs Rated Almanac*, author Les Krantz ranks 250 jobs according to six criteria: income, stress, physical demands, potential growth, job security, and work environment. The top ten, according to Krantz, are

1. Web Site Manager
2. Actuary
3. Computer Systems Analyst
4. Software Engineer
5. Mathematician
6. Computer Programmer
7. Accountant
8. Industrial Enginer
9. Hospital Administrator
10. Web Developer

Note that mathematician is 5th on the list, and that every job in the top ten requires significant mathematical reasoning and knowledge.

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