

Computational Mathematics

Computational mathematicians devise and analyze new methods to find accurate numerical solutions to applied problems. The Department of Mathematics has a very strong concentration in computational mathematics and scientific computing, training applied mathematicians who are in demand.

Data Science

The Department of Mathematics is developing an interdisciplinary Bachelor of Science and Master of Science in [Data Science](#), one of the hottest new areas for employment. Students learn data mining, analysis, modeling & visualization applied to Big Data. The Department is collaborating with computer science, business, and other areas of science & engineering to develop an interdisciplinary degree in Data Science that prepares graduates to work in this [exciting and explosive growth area](#). [Data scientists](#), dependent on qualifications and experience, report earning from \$60,000 to \$115,000.

Applied Statistics

By following a course of study based on statistics, probability, numerical analysis, & scientific computing, and coupling this with interest, or a minor, in applied fields such as biology, social science, economics, or business, students can construct a Mathematics BS degree focussed on Applied Statistics with great employment opportunities. Entry level salary for statisticians is \$39,840 and median salary is \$73,880

Actuarial Science

Many UMass Dartmouth mathematics majors are interested in a career as an actuary. The Department of Mathematics does not have a specialty in Actuarial Science, yet courses in probability, statistics, numerical analysis, scientific programming, and related business courses prepare students for internships & graduate study in Actuarial Science, one of the most highly prized professional careers. The median annual salary for an [actuary](#) with a Bachelor degree and on-the-job training was \$87,650 in 2010.

Where do I look for mathematics-based jobs?



Get Mathematics Jobs

<http://www.getmathematicsjobs.com>

Get Statistics Jobs

<http://www.getstatisticsjobs.com>



<http://www.monster.com>



Mathematical entrepreneurs

If you have an entrepreneurial spirit, a mathematics degree or concentration puts you in a good place to start your own business. Some examples are:

- Joseph Silverman, Jeffrey Hoffstein, Jill Pipher & Daniel Lieman, co-founders of [NTRU Cryptosystems](#)
- [Flaminia Cavallo](#), founder, TheoryMine Ltd
- [Neal Goldman](#) sold his [math-based startup](#), a financial analysis company called CapitalIQ, for \$225 million to Standard & Poor's
- William Browning founder of [Applied Mathematics Inc](#) in Connecticut.



Department of Mathematics

<http://www.umassd.edu/cas/math/>

Mathematics Careers

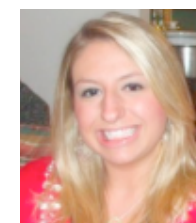


Adelaide Hopkins

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BS. Associate Analyst, Nucleus
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Robert Le Boeuf

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Institute, Cambridge MA, now
graduate student in Biological &
Ecological Engineering, Oregon
State University

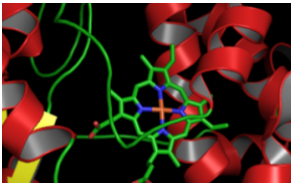


How is modern mathematics used?

Mathematical ideas & techniques are used in a wide range of areas, including the following careers:

Computational biologist:

apply techniques of applied mathematics, statistics & computer science to biological problems.

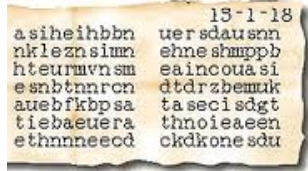


Forensic analyst:

use bloodstain patterns to analyze crime scenes for victim location & type of weapon used.

Cryptanalyst:

decode secret messages & coding systems; protect privacy of organizations by supervising online security of data systems.



Actuary:

analyze financial impact of risk & uncertainty, estimate probability & likely cost of event such as death, sickness, injury, disability, or loss of property.

Statistician: apply statistical knowledge to design of surveys & experiments, collection, processing & analysis of data, & interpretation of experiments & survey results.



NASA Mathematician:

see Andrea Meyer's *Women@NASA* video <http://bit.ly/WTxtgY> and Katherine Johnson's: *Becoming a NASA Mathematician* <http://bit.ly/Xnt9l6>

What skills does a UMass Dartmouth mathematics degree give me?



"If you do a mathematics degree, then there is a wide range of areas where people will welcome your skills." Matt Henderson, Speech and Language Processing Researcher

"Math provides a very general type of training, but its skill set has many applications." William Browning, President of Applied Mathematics, Inc., Connecticut.



As a mathematics major at UMass Dartmouth you have the opportunity to learn critical skills that make you desirable to a wide range of employers. Dependent on how you structure your degree, you can learn how to:

- write professional technical reports using the typesetting language LaTeX;
- give talks and present your work to other students, and at professional meetings;
- construct strong arguments and proofs for your findings;
- carry out original research under the guidance of experienced faculty mentors;
- utilize software for scientific and statistical computing, including Mathematica, MATLAB, Python and R;
- numerically analyze equations used in mathematical modeling;
- utilize high-performance computing for the solution of computationally difficult problems;
- construct and analyze mathematical models of natural phenomena, including those used in local industry.

The skills of precise thought, ability to apply mathematical tools & techniques to problems, to analyze data, to write clear & accurate technical reports, to give succinct & clear technical talks, and to utilize powerful software and computation make you valuable to many employers.

Who will hire me ?

Corporations that employ applied & computational mathematicians include:

- AT&T Laboratories – Research
- Bell Labs, Alcatel-Lucent
- The Boeing Company
- Birkhäuser Springer
- Booz Allen and Hamilton
- General Motors Corporation
- Hewlett-Packard IBM Corporation
- Kodak Kuberre Systems
- Lockheed Martin Mentor Graphics
- Merck & Co Mining Piazza
- NASA NEC Laboratories America, Inc.
- Palo Alto Research Center
- Philips Research

How much will I make ?

Examples of entry level through higher level annual salaries for various mathematics-based careers:

CAREER	ENTRY	MEDIAN	ADVANCED
Computational biologist	\$45,000	\$83,000	\$150,000
Forensic analyst	\$32,900	\$51,570	\$82,990
Cryptanalyst	\$63,930	\$101,645	\$137,780
Actuary	\$53,100	\$87,650	\$160,000
Statistician	\$39,840	\$73,880	\$199,710
Biostatistician	\$38,430	\$72,820	\$117,210
Epidemiologist	\$40,860	\$63,010	\$98,380
Mathematical Biophysicist	\$34,392	\$93,270	\$113,068
ForEx Trader	\$40,000	\$110,720	\$180,000

Find more information on mathematics-based careers & salaries:

WeUseMath.org