

# APPLIED STATISTICS BS

## CAREER OVERVIEW FOR STUDENTS



Statistics is the scientific application of mathematical principles to the collection, analysis, and presentation of numerical data. RIT's Applied Statistics program provides students with a strong foundation in mathematical and statistical principles, experience with real-world applications, and a solid background in advanced statistical software packages. Students in this program learn to effectively apply statistics to problems in data analysis, quality control, reliability analysis, experimental design, survey sampling, and statistical forecasting. In addition, students learn the important skills of designing an experiment, selecting and formulating appropriate statistical models, interpreting and analyzing data, and communicating the results in written and oral form. Students also select a **program concentration** in a related application field. Program concentrations include actuarial science, biology, biostatistics, chemistry, economics, finance, industrial engineering, marketing, operations research, psychology, and public policy. Graduates of RIT's Applied Statistics program find outstanding professional opportunities in business, industry, and government, and are accepted into the very best graduate programs.

### Course Description for Applied Statistics:

[http://www.rit.edu/programs/program\\_detail.php?id=635](http://www.rit.edu/programs/program_detail.php?id=635)

### Degree(s) Awarded

Bachelor of Science in Applied Statistics

Bachelor of Science in Applied Statistical & Master of Science in Applied Statistics (dual degrees)

Bachelor of Science in Applied Statistical & Master of Science in Applied Mathematics (dual degrees)

### Enrollment

25-35 students are enrolled.

### Cooperative Education Component

Students are eligible to participate in an optional co-op program upon completion of 2<sup>nd</sup> year courses. Participation is strongly encouraged.

### Salary Information – Avg/Range

Co-op:	\$16.50	\$11.00 - \$19.50
*BS:	\$49,759	\$35,000 - \$60,000

\*Statistics from the Nat'l Assn. Of Colleges & Employers (NACE) for 2007-2008 graduates

### Equipment & Facilities

Students have access to programming, statistical and simulation languages, graphics software and design tools on a variety of platforms. Symbolic computation and statistical laboratories are also available.

### Student Skills & Capabilities

- Data analysis, simple and multiple regression analysis, interpretation and presentation of data, problem solving, experimental design, survey sampling, quality control methodologies, statistical inference and statistical modeling.

### • Computer Skills:

Software: SAS, SPSS, Mathematica, MATLAB, Maple, Minitab

Language: Java

Operating Systems: UNIX, VMS, Mac OS, Windows NT

Hardware: VAX, Macintosh, HP

### Nature of Work

Statisticians contribute to scientific inquiry by applying their mathematical and statistical knowledge to the design of surveys and experiments; collection, processing, and analysis of data; and interpretation of the results.

Statisticians may apply their knowledge of statistical methods to a variety of subject areas, such as biology, economics, engineering, medicine, public health, psychology, marketing, education, and sports. Many economic, social, political, and military decisions cannot be made without the use of statistical techniques, such as the design of experiments to gain Federal approval of a newly manufactured drug. In industry, statisticians play an important role in quality control and product/process improvement based on data analysis. (Source: U.S. Bureau of Labor Statistics Occupational Outlook Handbook '08-'09)

## **Training/Qualifications**

Although more employment opportunities are becoming available to individuals with a bachelor's degree in statistics, a master's degree in statistics or mathematics is usually the minimum educational requirement for most statistician jobs. Research and academic positions usually require a Ph.D. in statistics. Beginning positions in industrial research often require a master's degree combined with several years of experience. Jobs with the Federal Government require at least a bachelor's degree. Because computers are used extensively for statistical applications, a strong background in computer science is highly recommended. For positions involving quality and improvement in productivity, training in engineering or physical science is useful. A background in biological, chemical, or health science is important for positions involving the preparation and testing of pharmaceutical or agricultural products. Courses in economics and business administration are valuable for many jobs in market research, business analysis, and forecasting..

*(Source: U.S. Bureau of Labor Statistics O.O.H. '08-'09)*

## **Job Outlook**

Average employment growth is projected. Individuals with a degree in statistics should have opportunities in a variety of fields. Employment of statisticians is projected to grow 13 percent from 2008 to 2018, about as fast as the average for all occupations. The demand for individuals with a background in statistics is expected to grow, although some jobs will be in occupations with titles other than "statistician." The use of statistics is widespread and growing. Statistical models aid in decision making in both private industry and government. There will always be a demand for the skills statistical modeling provides. Technological advances are expected to spur demand for statisticians. *(Source: U.S. Bureau of Labor Statistics O.O.H. '08-'09)*

## **Job Titles**

Actuary, Operations Research Analyst, Financial Analyst, Teacher (secondary or post-secondary), Market Research Specialist, Data Analyst (e.g. biological, clinical trial), Quality Assurance Engineer/Analyst, Biostatistician, Underwriter, Statistician

## **Significant Points**

- About 30 percent of statisticians work for Federal, State, and local governments; private-industry employers include scientific research and development services, insurance carriers, and pharmaceutical and medicine manufacturing.
- A master's degree in statistics or mathematics is the minimum educational requirement for most jobs as a statistician. *(Source: U.S. Bureau of Labor Statistics O.O.H. '08-'09)*

## **Employment**

Statisticians held about 22,600 jobs in 2008. About 20 percent of these jobs were in the Federal Government, where statisticians were concentrated in the Departments of Commerce, Agriculture, and Health and Human Services. Another 10 percent were found in State and local governments, including State colleges and universities. Most of the remaining jobs were in private industry, especially in scientific research and development services, insurance carriers, and pharmaceutical and medicine manufacturing. *(Source: U.S. Bureau of Labor Statistics O.O.H. '08-'09)*

## **Selected Employers of RIT Applied Statistics Co-op and Graduating Students:**

Blue Cross/Blue Shield, CIGNA Healthcare, Cognigen Corp., Corning Tropol Corp., Harris Interactive Inc., Liberty Mutual Insurance Co., Mayo Clinic, Minitab Inc., Ortho-Clinical Diagnostics, Pfizer Inc., U.S. Bureau of Labor Statistics, U.S. Census Bureau, Xerox Corp.

## **Contact Us:**

We appreciate your interest in your career. We will make every effort to help you succeed. Call our office and ask to speak with Kara Leonard, the program coordinator who works with the Applied Statistics program. For your convenience, you can access information and services through our web site at <http://www.rit.edu/co-op/careers>.

## **Kara Leonard**

### **Program Coordinator**

Office of Cooperative Education and Career Services

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