“Career Opportunities in Statistics”

Presented by

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“One of the advantages of being a statistician is being involved in leading-edge science” - Adrian Roberts, Biomathematics and Statistics Scotland
Statistics in ...

- industry
- government
- business
- the natural world
- research
- health
- education
- finance
What an Industrialist says…

“The combination of engineering science and statistical science is necessary to achieve what is demanded from us by our customers - a consistent level of superlative performance”

- Richard Parry-Jones, Group Vice-President of Product Development and Quality, Ford Motor Company
Statistics in Industry

Industrial processes are complex and expensive. Decisions on how these processes are set up and operated affect the quality of the product and can have huge financial consequences. Statistics has therefore become a fundamental part of quality management and industrial design. Important uses of statistics include:

- The efficient control of production processes
- Minimising industrial pollution
- Modelling traffic flow
- Risk assessment in nuclear reactors
- Optimization of Process
What a Corporator has to say…

“I used advanced statistical techniques on a database of around ten million customers and their purchases, to explore and analyse trends in buyer behaviour, for example in seeing which products tend to be bought together in the same visit to a store.”

- David Collins, Data Analyst, Mark & Spencer
Statistics in Business

- Design experiments for new products
- Conduct focus groups and sample surveys
- Perform field experiments in test markets to determine product viability
What a media person says…

“Practical statistical skills will always be needed by any good or ambitious organisation. Flexibility coupled with an eye for numbers can offer a hugely interesting and rewarding life.”

- Simon Briscoe, Statistics Editor, Financial Times
“As a Statistician you get responsibility early and every day is different”

- Peter Green, Professor of Statistics
Statistics in Education

The ability to interpret information in numerical and graphical form is a vital skill for young people to learn. Therefore, Statistics is taught in college level.

Despite this, there are still relatively few teachers trained in statistics. So there are extensive and influential opportunities for statisticians in teaching.

Quality of Education can be enhanced through Statistical Methods through assessment of teaching learning process.
Statistics in Government

Key decisions on various aspects of government work are based on the information and advice provided by statisticians.

Unemployment
The economy
Inflation
Hospital waiting lists
Crime
Family Life
What a Government advisor says….

“My main role is to help people inside and outside government to make effective use of data in decision making. It's rewarding to see the difference it makes."

- Richard Alldritt, Statistical Directorate, National Assembly for Wales
Lecturer in epidemiology and medical statistics says..

“My work in medical statistics has always involved collaborating with experts in medicine and it is important to be able to communicate effectively. Statistics are used to clarify research issues and quantify their effects. The results can influence local, national and international policy.” - Allan Hackshaw
Statistics in Health

Statisticians are responsible for designing and analysing experiments to assess the effects of drugs and to check for any side-effects.

They can also be involved in all areas of drug development, from chemical discovery through clinical development to post-marketing safety surveillance.
Statistics in Finance

Statisticians are employed by organisations such as:

- Investment companies
- Insurance companies
- Consulting actuaries
- Banks
Statistics has now entered the world of cricket. A detailed analysis of the score sheets from hundreds of one-day matches has led to the invention by statisticians of the Duckworth/Lewis method of setting revised targets when a game is interrupted by bad weather. When one side or the other has its allocation of over reduced during its innings, the balance of the run scoring resources possessed by the two sides is upset and the D/L method redresses this balance.

The method was first used by England and Zimbabwe in 1997 and has now spread to the entire cricketing world.
Salary Information

Employment estimate and mean wage estimates for statisticians:

<table>
<thead>
<tr>
<th>Mean hourly wage</th>
<th>Mean annual wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>$33.21</td>
<td>$69,080</td>
</tr>
</tbody>
</table>

Percentile wage estimates for statisticians:

<table>
<thead>
<tr>
<th>Percentile</th>
<th>10%</th>
<th>25%</th>
<th>50% (Median)</th>
<th>75%</th>
<th>90%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hourly Wage</td>
<td>$17.79</td>
<td>$23.31</td>
<td>$31.60</td>
<td>$42.23</td>
<td>$52.22</td>
</tr>
<tr>
<td>Annual Wage</td>
<td>$37,010</td>
<td>$48,480</td>
<td>$65,720</td>
<td>$87,850</td>
<td>$108,630</td>
</tr>
</tbody>
</table>
Salary Information

Industries with the highest levels of employment for statisticians:

<table>
<thead>
<tr>
<th>Industry</th>
<th>Hourly mean wage</th>
<th>Annual mean wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Executive Branch (OES designation)</td>
<td>$41.09</td>
<td>$85,460</td>
</tr>
<tr>
<td>Scientific Research and Development Services</td>
<td>$38.26</td>
<td>$79,580</td>
</tr>
<tr>
<td>Colleges, Universities, and Professional Schools</td>
<td>$26.62</td>
<td>$55,370</td>
</tr>
<tr>
<td>State Government (OES designation)</td>
<td>$22.89</td>
<td>$47,610</td>
</tr>
<tr>
<td>Insurance Carriers</td>
<td>$29.52</td>
<td>$61,400</td>
</tr>
</tbody>
</table>
## Salary Information

**Source:** Bureau of Labor Statistics May 2006

Top paying industries for statisticians:

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<tr>
<th>Industry</th>
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<th>Annual mean wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internet Service Providers and Web Search Portals</td>
<td>$46.01</td>
<td>$95,700</td>
</tr>
<tr>
<td>Federal Executive Branch (OES designation)</td>
<td>$41.09</td>
<td>$85,460</td>
</tr>
<tr>
<td>Semiconductor and Other Electronic Component Manufacturing</td>
<td>$41.08</td>
<td>$85,440</td>
</tr>
<tr>
<td>Pharmaceutical and Medicine Manufacturing</td>
<td>$40.91</td>
<td>$85,100</td>
</tr>
<tr>
<td>Navigational, Measuring, Electromedical, and Control Instruments Manufacturing</td>
<td>$40.06</td>
<td>$83,330</td>
</tr>
</tbody>
</table>
A final word ...

"We encourage young people who want to have interesting work which can make a positive difference to the quality of our lives to consider statistics as a career."
References

- American Statistical Association
- The Royal Statistical Society
Thank You

Any Questions?