Consider a Career as an Actuary

Presented at UT Dallas by
Jose Torres
3/1/2013
Who am I?

• Education
  ➢ UT Dallas, BS Math, Statistics Major (2009)
  ➢ Founder of Actuarial Student Association (2009)

• NSAI 2009 - 2011
  ➢ Petroleum Analyst

• USAA 2011 – Present
  ➢ Actuarial Analyst
What is Insurance?

Insurance is a promise to pay a certain amount of money if a specific event occurs.

- Someone else’s medical bills in the event you cause an automobile accident...
- Damages to your home if it blows away...
- Medical bills for injuries on the job...
What is an Actuary?

• An Actuary is a person who
  
  – applies mathematical, analytical, and business skills to solve financial and social problems.
  
  – develops models to estimate the financial impact of future events.
  
  – puts a price tag on future risks
    
    • probability of having an auto accident
    
    • probability of dying before reaching 72 years of age.
What is an Actuary?

Actuarial Science

What my friends think I do.

What my mom thinks I do.

What my boss thinks I do.

What I think I do.

What I actually do.
What is an Actuarial Student?

Actuary Student

What other students think I do.

What society thinks I do.

What my boss thinks I do.

What my friends think I do.

What I think I do.

What I actually do.
What’s the probability?

Tire blowout at high speed
What’s the cost?

4 injured, 1 serious, 0 deaths
What do I need to be an Actuary?

**Essential Characteristics**
- Mathematical ability
- Analytical ability
- Communication skills

**Typical Backgrounds**
- Mathematics/Statistics
- Business/Finance
- Economics
- Computer Science

**Resume Items**
- Actuarial Exams
- Internships
2012 Best Jobs

- Software Engineer
- Actuary
- Human Resources Manager
- Dental Hygienist
- Financial Planner

Based on 6 Criteria: Income, Outlook, Security, Stress, Environment, and Physical Demands
2012 Worst Jobs

- Lumberjack
- Dairy Farmer
- Enlisted Military
- Oil Rig Worker
- Newspaper Reporter

Based on 6 Criteria: Income, Outlook, Security, Stress, Environment, and Physical Demands
Where do Actuaries work?

- Insurance Industry
  - P&C: Property and Casualty
  - Life and Annuities
- Employee Benefit Industry
  - Pensions
  - Health
  - Social Security
- Financial Industry
  - Banks, investing, risk management

### Society of Actuaries

<table>
<thead>
<tr>
<th>Geographic Region</th>
<th>% of Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Northeast</td>
<td>24</td>
</tr>
<tr>
<td>U.S. Midwest</td>
<td>21</td>
</tr>
<tr>
<td>U.S. South</td>
<td>16</td>
</tr>
<tr>
<td>U.S. West</td>
<td>9</td>
</tr>
<tr>
<td>Canada</td>
<td>18</td>
</tr>
<tr>
<td>Outside U.S. and Canada</td>
<td>12</td>
</tr>
</tbody>
</table>

### Casualty Actuarial Society

<table>
<thead>
<tr>
<th>Geographic Region</th>
<th>% of Membership</th>
</tr>
</thead>
<tbody>
<tr>
<td>U.S. Northeast</td>
<td>38</td>
</tr>
<tr>
<td>U.S. Midwest</td>
<td>25</td>
</tr>
<tr>
<td>U.S. South</td>
<td>13</td>
</tr>
<tr>
<td>U.S. West</td>
<td>10</td>
</tr>
<tr>
<td>Canada</td>
<td>8</td>
</tr>
<tr>
<td>Outside U.S. and Canada</td>
<td>6</td>
</tr>
</tbody>
</table>
Types of Actuaries: SOA versus CAS

SOA: Society of Actuaries
CAS: Casualty Actuarial Society
Fellows & Associates as of November 2011

SOA 22,379 (80%)
CAS 5,470 (20%)
What do Actuaries do?

- Pricing Casualty Analysts set prices for assigned states and lines of business.
- Life Actuaries get involved in a myriad of activities for life insurance pricing and valuations of insurance products.
- Loss Reserving Analysts set liabilities for anticipated costs of claims.
How do I become an Actuary?

- Passing a set of exams given by the Casualty Actuarial Society.
- Offered in Spring (April-May) & Fall (Oct-Nov) (Some exams offered more often)
CAS Areas of Study: Preliminary Exams

P/1  Probability (3 hrs)

FM/2  Financial Mathematics
      (Theory of Interest) (3 hrs)

MFE/3F  Financial Economics (3 hrs)

3L  Life Contingencies
    & Statistics (2.5 hrs)

C/4  Construction & Evaluation of Actuarial Models (3.5 hrs)
<table>
<thead>
<tr>
<th>Internet Courses</th>
<th>Risk Management &amp; Insurance Operations Accounting, Coverages, Law, &amp; Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>Basic Techniques for Ratemaking and Estimating Claims Liabilities (4 hrs)</td>
</tr>
<tr>
<td>6</td>
<td>Regulation and Financial Reporting (4 hrs)</td>
</tr>
</tbody>
</table>
CAS Areas of Study: Fellowship Exams


8. Advanced Ratemaking (4hrs)

9. Financial Risk & Rate of Return (4 hrs)

FCAS!
Validation by Educational Experience (VEE)

- Economics – one semester each of introductory Microeconomics & Macroeconomics
- Corporate Finance – one Finance course with an introductory Corporate Finance course as a prerequisite
- Applied Statistical Methods – Time Series & Regression must be covered in one or two courses

Jointly sponsored by SOA and CAS
## Approved VEE Courses for UTD

<table>
<thead>
<tr>
<th>Applied Statistical Methods</th>
<th>Description</th>
</tr>
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<tbody>
<tr>
<td>ECON 6306</td>
<td>Applied Econometrics</td>
</tr>
<tr>
<td>MAS 6V08</td>
<td>Quantitative Methods for Business Decision Making</td>
</tr>
<tr>
<td>STAT 6337 and STAT 6347</td>
<td>Advanced Statistical Methods / Applied Time Series Analysis</td>
</tr>
<tr>
<td>STAT 3355 and STAT 4382</td>
<td>Data Analysis for Statisticians and Actuaries / Stochastic Processes</td>
</tr>
<tr>
<td>Corporate Finance</td>
<td></td>
</tr>
<tr>
<td>BA 3341</td>
<td>Business Finance</td>
</tr>
<tr>
<td>FIN 6301</td>
<td>Financial Management</td>
</tr>
<tr>
<td>Economics</td>
<td></td>
</tr>
<tr>
<td>ECO 2301 and ECO 2302</td>
<td>Principles of Macro / Microeconomics</td>
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</table>
What to Expect...

- Travel Time through the exams is **8-9 years**
- A solid effort for an exam could require from **350-500 hours**
- Pass Ratios have been averaging about **45%**
- That said...

  The *rewards* are worth it!
## What do actuaries earn?

<table>
<thead>
<tr>
<th># of Exams</th>
<th>Total Pay</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$55,000</td>
</tr>
<tr>
<td>4</td>
<td>$73,000</td>
</tr>
<tr>
<td>7</td>
<td>$93,000</td>
</tr>
<tr>
<td>New Fellow</td>
<td>$110,000</td>
</tr>
</tbody>
</table>

* 2010 insurance industry survey.
Advice to Students Who Want to Be Actuaries

- Develop disciplined study habits.
- Take a well-rounded curriculum.
- Sharpen your communication skills.
- Take actuarial exams while in school - the sooner you start, the sooner you will finish.
- Look for opportunities for internships.
In Conclusion, ...

- Future is bright for Actuaries!
  - Demand exceeds supply
  - Career is dynamic and offers high rewards for demonstrated progress.

- If you still need more information...

  www.beanactuary.org
  CAS – www.casact.org and
  SOA – www.soa.org
  American Academy of Actuaries – www.actuary.org
Questions? Comments?

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– Actuarial hiring; internships; candidate counseling