



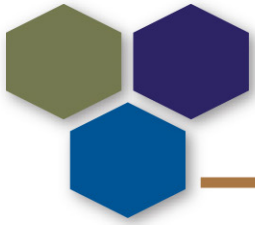
# What Can I Do with a Mathematics Degree?

Danny White  
December 6, 2011

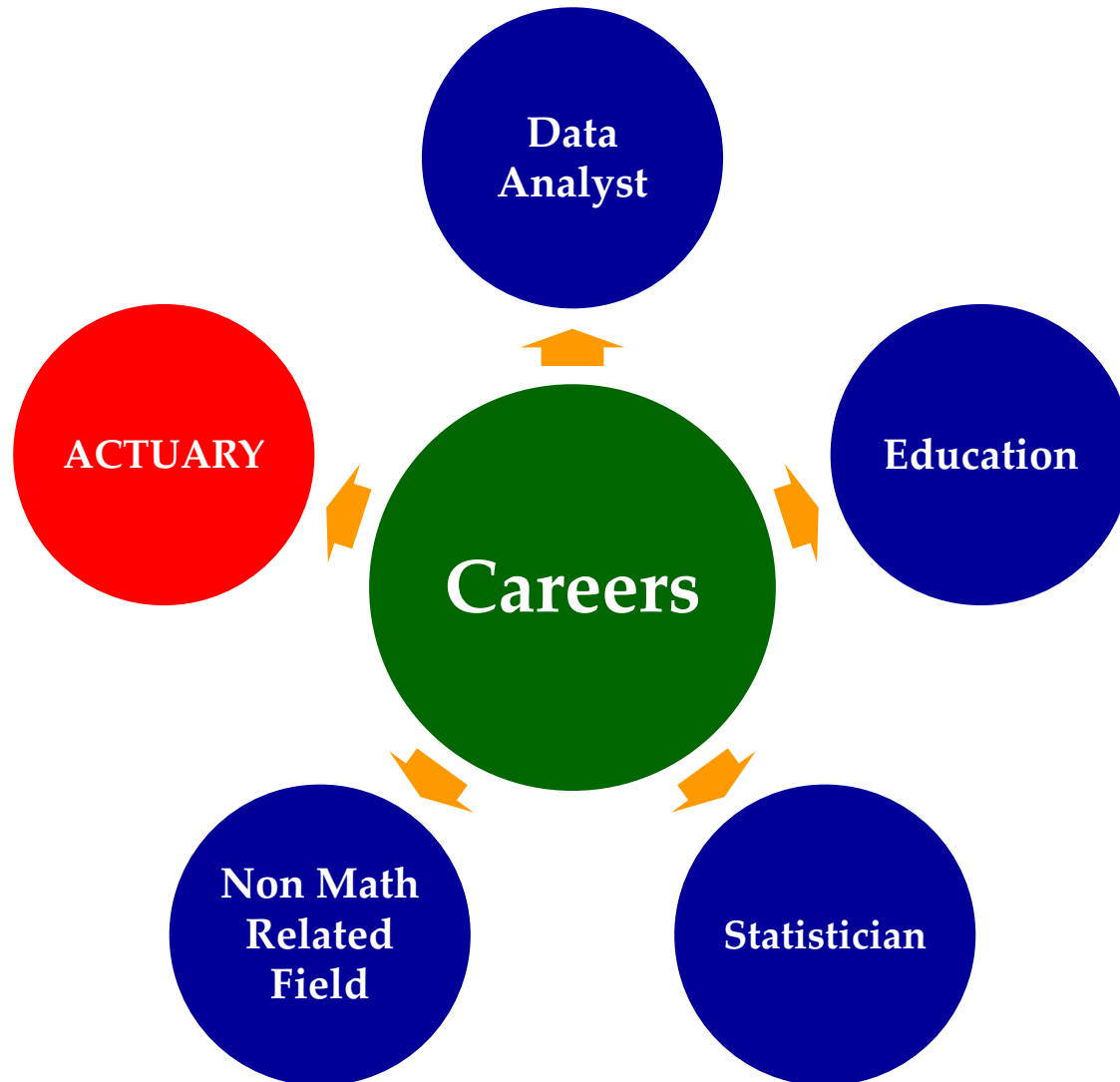
**GRS**

Gabriel Roeder Smith & Company  
Consultants & Actuaries  
[www.gabrielroeder.com](http://www.gabrielroeder.com)

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# Careers in Math





# What is an Actuary

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## **Mathematician who:**

- ◆ Use analytical and financial skills to help solve problems
- ◆ Perform calculations and projections which are the backbone of the Pension and Insurance Industries
- ◆ Assigns a price to future risk



# The Perks of an Actuary

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- ◆ High salary
- ◆ Professional prestige
- ◆ Quality work environment
- ◆ Challenging projects
- ◆ Low stress (Sometimes)



# Persona of an Actuary

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## ◆ Characteristics

- ▶ Passion of problem solving
- ▶ Enjoy being intellectually challenged
- ▶ Good communicator

## ◆ Necessary Skills

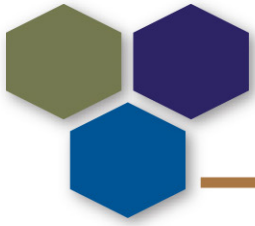
- ▶ Reasoning ability
- ▶ Analytical skills
- ▶ Verbal and written communication
- ▶ Time management



# Employers of Actuaries

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- ◆ Insurance Companies
  - ▶ Medical
  - ▶ Life
  - ▶ Property and Casualty
- ◆ Benefit Consulting Companies
- ◆ Public Accounting Firms
- ◆ Government Agencies
  - ▶ Internal Revenue Service
  - ▶ Pension Benefit Guarantee Corporation (PBGC)



# Gabriel, Roeder, Smith & Company



# GRS and Public Retirement Systems

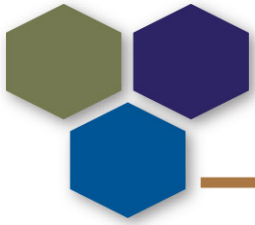
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- ◆ National firm whose primary focus is the public sector
  - ▶ Started in 1938 – and still work with our first client
  - ▶ Serve 600+ public employee systems (Pension and OPEB)
  - ▶ Over 120 associates
  - ▶ Frequent speakers and active participants in public sector meetings and task forces
- ◆ Five offices located in:
  - ▶ Chicago, Dallas, Denver, Detroit, and Fort Lauderdale

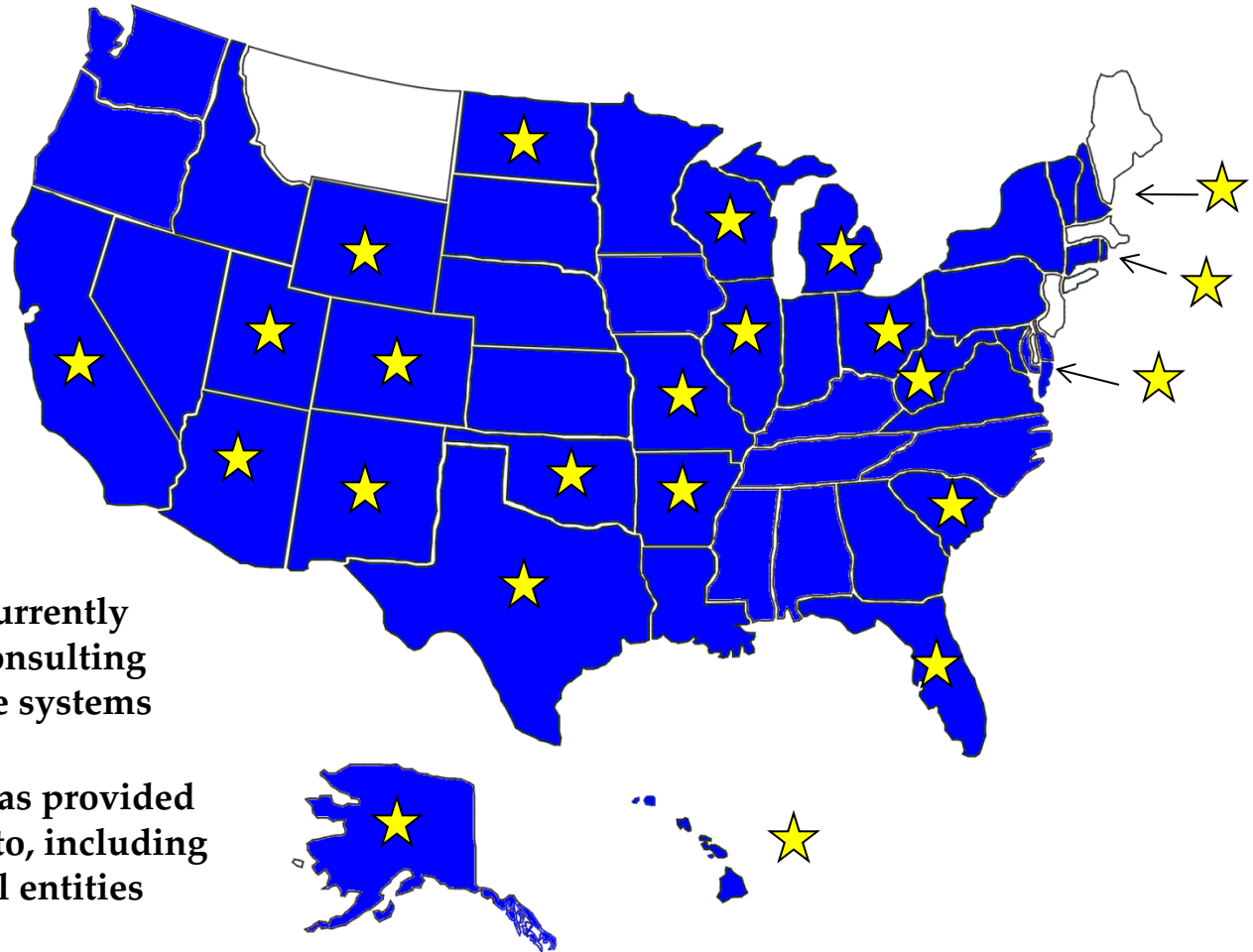
**GRS is the Premier Firm in the  
Public Sector Consulting Business**

**GRS**





# A National Perspective



 States where GRS currently provides retained consulting services to statewide systems

 States where GRS has provided consulting services to, including cities and other local entities



# Recent Headlines

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Ohio Public employees, not taxpayers, will pay for changes to the state's five pension systems under House bill

U.S. House committees holding hearings on state bankruptcy and pension plans

Washington legislature to consider constitutional amendment requiring full funding of pensions

Study says public pension funds are "implementing aggressive allocation strategies"

Changes to rules affecting public worker unions are under consideration in several states

Wisconsin Assembly OKs hiking state employee contributions

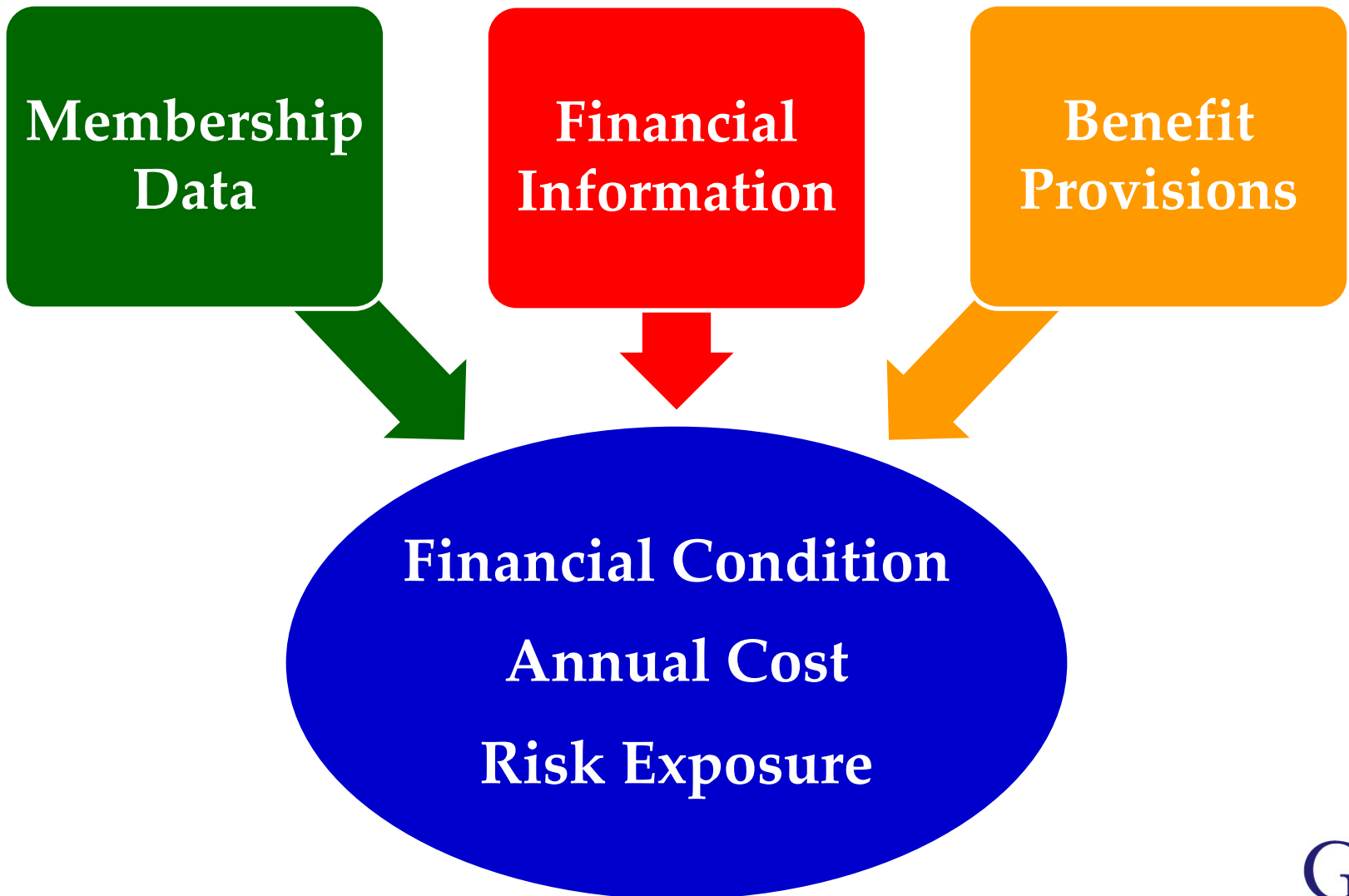
Miss. Retirement Board agrees to put off proposed increase in contribution to pension system

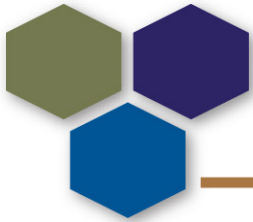
Arizona Needs Bold Pension Reform Plan



# Pension Plan Valuation Process

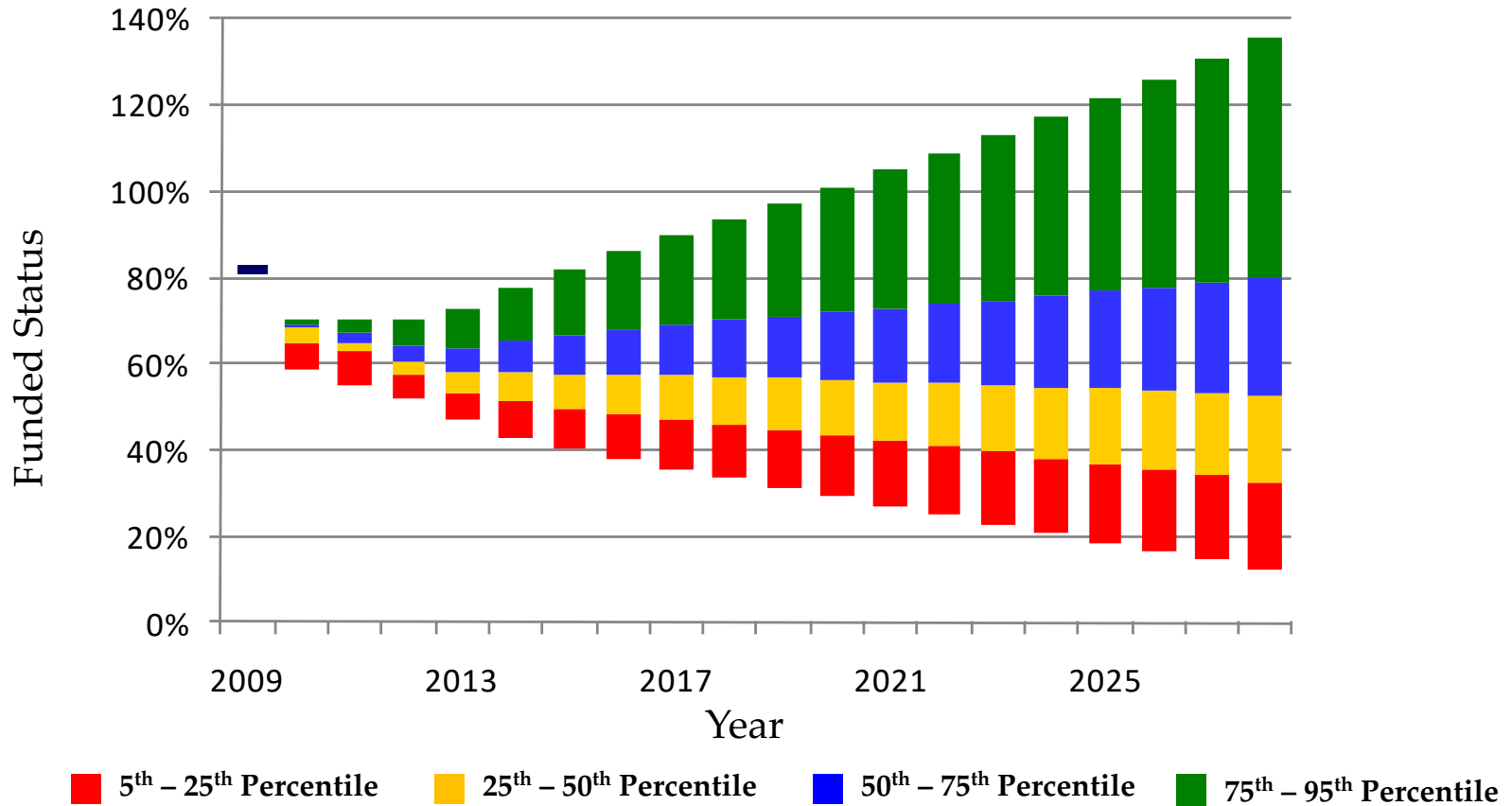
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# Various Projection Techniques

## Example use of Stochastic Projections



Assumptions

- Projected liabilities based on a plan with similar characteristics as Client XYZ
- Assumes employer contributions equal to 16.50% of covered payroll in all years
- Investment returns based 2010 capital market assumptions and Client XYZ 2009 target asset allocation



# Closing Thoughts

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- ◆ Your mathematics background will provide you an edge in the workforce
- ◆ Choose a career that involves something you are passionate about
- ◆ Continue learning and developing your skills