



# Are you interested in a career as an **actuary**?



## ❑ What is an Actuary?

**[Merriam-Webster]** A person who calculates insurance and annuity premiums, reserves, and dividends.

**[Wikipedia]** A business professional who deals with the measurement and management of risk and uncertainty. Actuary provides expert assessments of financial security systems, with a focus on their complexity, mathematics, and mechanisms.

## ❑ Occupational Outlook (edited from <http://www.bls.gov/ooh/math/actuaries.htm>)

- ◆ **Work Environment:** Most actuaries work in an office setting. Actuarial consultants frequently travel to meet with clients.
- ◆ **Typical Entry-Level Education:** Bachelor's degree
- ◆ **Annual Salary:** The median annual wage of actuaries was \$108,350 (\$52.09 per hour) in May 2019.
- ◆ **Job Outlook:** Employment of actuaries is expected to grow by 18 percent between 2019 and 2029.

## ❑ Got Skills? (edited from <http://www.beanactuary.org>)

- ◆ Actuaries bring a special set of skills to their work:
  - Specialized knowledge in calculus, statistics, probability
  - Good business sense: finance, accounting, economics
  - Strong computer skills: statistical software, programming languages, database manipulation, formulating spreadsheets
  - Keen analytical and problem solving skills
  - Solid oral and written communication skills
- ◆ If you are currently pursuing an undergraduate degree and are interested in an actuarial career, your equation for success should include the following courses: finance, microeconomics, macroeconomics, calculus, linear algebra, probability and statistics, computer science, marketing, communication courses, and among others.

## ❑ Actuarial Preliminary Exams & VEE (check SOA and CAS websites for advanced level of exams)

- ◆ **Exam P** (called by the SOA) / **1** (called by the CAS) [**Probability Exam**]: Knowledge of probability with application to insurance and risk management settings. A thorough command of calculus and probability topics is assumed.
- ◆ **Exam FM / 2** [**Financial Mathematics Exam**]: Knowledge of interest theory and an introduction to derivative securities.
- ◆ **Exam IFM / 3F** [**Investment and Financial Markets Exam**]: Knowledge of the theoretical basis of corporate finance and financial models and the application of those models to insurance and other financial risks.
- ◆ **Exam LTAM** [**Long-Term Actuarial Mathematics Exam**]: Knowledge of the theoretical basis of contingent payment models and the application of those models to insurance and other financial risks.
- ◆ **Exam MAS-I** [**Modern Actuarial Statistics I Exam**]: Knowledge of probability models (stochastic processes and survival models), statistics, extended linear models, and time series with constant variance.
- ◆ **Exam MAS-II** [**Modern Actuarial Statistics II Exam**]: Knowledge of introduction to credibility, linear mixed models, Bayesian analysis and Markov Chain Monte Carlo, and statistical learning.

◆ The **VEE** [**Validation by Educational Experience**] requirement is jointly sponsored by the Society of Actuaries (SOA), Casualty Actuarial Society (CAS) and Canadian Institute of Actuaries (CIA). There are three VEE topics:

- **Economics**
- **Accounting and Finance**
- **Mathematical Statistics**

The VEE topics are not prerequisites for the exams listed above and may be fulfilled independently of the exam process. However, you must pass two SOA or CAS actuarial exams before applying to have your VEE credit added to your record.

## ❑ What You Should Do at Cal Poly Pomona?

- ◆ Most suitable undergraduate major is **Mathematics** with **Applied Math /Statistics Subplan**.
- ◆ In addition to the required core courses for Math major, you are strongly encouraged to complete following courses offered at Cal Poly Pomona for the VEE requirement: **EC 2201 / EC 2202** for VEE **Economics**; **ACC 2070 / FRL 3000** for VEE **Accounting and Finance**; **STA 4400 / STA 4430** for VEE **Mathematical Statistics**.
- ◆ Courses that help you prepare your actuarial exams:
  - **STA 2100 / STA 2200** or **STA 4400 / STA 4430**: **Exam P / 1** with a thorough command of calculus (**MAT 1140/1150/2140**)
  - **STA 4200 / STA 4250 / STA 4300 / STA 4320 / STA 4700 / STA 5250**: **Exam MAS-I** and **Exam MAS-II**
- ◆ Any inquiries about an actuary may be addressed to **Dr. Jimmy Risk, Dr. John Rock, Dr. Alan Krinik, or Dr. Hoon Kim** of Math & Statistics Dept or visit its related URLs: <http://www.beanactuary.org/> <http://www.soa.org/> <http://www.casact.org/>