

**COLORADO STATE UNIVERSITY
MATHEMATICS MAJOR
CONCENTRATION IN ACTUARIAL SCIENCE**

NAME: _____ SSN: _____ ADVISER: _____ TERM OF GRAD: _____

LOCAL ADDRESS: _____ ZIP: _____ PH: _____ E-Mail: _____

CORE COURSES (41 - 50 CREDITS)	MATH SCIENCES (45 CREDITS) (Grade of C or higher required in every Math, Computer Science and Statistics course in this column.)	ADDITIONAL COURSES (25 - 34 CREDITS)
CC = Core Curriculum		
FRESHMAN SEMINARS <u>2-3</u> Select one or two courses: (MCC 192 and STCC 192 are recommended): _____ _____	MATHEMATICS <u>29</u> ____ M CC 160 Calc for Phys Sci I [4] ____ M CC 161 Calc for Phys Sci II [4] ____ M229 Matrices & Linear Eqtn [2] ____ M261 Calc for Phys Sci III [4] ____ M317 Adv Calc of One Var. [4] ____ M345 Differential Equations [4] ____ M369 Linear Algebra [3] ____ M495A Preparation Exam I [1] ____ M417 Advanced Analysis [3] (Capstone)	BUSINESS <u>15</u> ____ BA210 Financial Acctg [3] ____ BF300 Principles of Fin Mgmt [3] ____ BF311 Investments-Fixed Inc [3] ____ BF342 Risk Mgmt & Insur [3] ____ BF370 Financial Management [3] ____ BGCC 205 Business Law [*]
COMMUNICATION SKILLS <u>6-8</u> ____ COCC 150 College Composition [3] Select one course from CC II-B ____ [3-5]	COMPUTER SCIENCE <u>4</u> ____ CSCC 151 C++ for Scientists and Engineers [4] OR ____ CSCC 153 Java Programming [4]	UNRESTRICTED ELECTIVES <u>10-19</u> ____ [] ____ [] ____ [] ____ [] ____ [] ____ [] ____ [] ____ [] ____ [] ____ []
NATURAL SCIENCES <u>10-15</u> Select from CC III-A either two courses with labs or three courses including at least one with a lab. Must include at least two different prefixes. ____ [] ____ []	STATISTICS <u>12</u> ____ ST321 Elem Prob Stoch Model [3] ____ STCC 309 Engineering Statistics [3] ____ ST420 Prob & Math Stat I [3] ____ ST430 Prob & Math Stat II [3]	GRADUATION REQUIREMENTS Total Credits [] (At least 120 credits) Upper-Division Credits [] (At least 42 credits) CSU Grade Point Average..... [] (At least 2.0) M120, M121, M124, M125 and M126 are considered by the Department of Mathematics to be review courses. Credits in these courses may not be used as part of a degree in math. Transfer students must complete a minimum of 9 upper-division credits in mathematics at CSU, excluding M315, M340, and mathematics courses ending in -80 to -99. See the Colorado State University General Catalog for complete statement of graduation requirements. Visit the Math Department web site for information on updated courses and requirements: www.math.colostate.edu
ARTS and HUMANITIES <u>3</u> Select one course from CC IIIB. ____ [3]	MINOR, SECOND MAJOR MINOR: _____ SECOND MAJOR: _____	
SOCIAL SCIENCES <u>2</u> ____ ECCC 202 Microeconomics [3] ____ ECCC 204 Macroeconomics [3] ____ EC335/EA335 Econometrics [3]	The program of study shown is subject to approval by the University Curriculum Committee	
HISTORY <u>3</u> Select one course from CC IIID. ____ [3]		
GLOBAL AWARENESS <u>3</u> Select one course from CC IIIE. ____ [3]		
PUBLIC VALUES <u>3</u> Select one course from CC IIIF. ____ BGCC205 Business Law [3]		
WELLNESS <u>2-3</u> Select one course from CC IIIG. ____ []		

* Note that BG205 is a required business course and satisfies the core Public Values requirement

Actuarial science is the mathematics of risk management. Actuaries create programs to protect people financially from expected and unexpected events, such as illnesses, accidents, unemployment or premature death. Their work requires making financial analyses based on broad business perspectives and management insight, using mathematical, financial and analytic skills.

Actuaries specialize in such areas as group benefits, individual life and annuity insurance, investments, pensions or property and casualty insurance. Here is a sample of the many activities in which actuaries are involved:

- Projecting what the AIDS epidemic will cost life and health insurance companies in five, ten and twenty years
- Determine the rates for malpractice insurance for doctors
- Developing long-term health care benefits and insurance policies
- Studying various social security programs
- Designing new computer software packages and programs for actuaries
- Determining rates for automobile and homeowners insurance
- Assisting companies in financial and tax planning
- Reviewing and developing insurance policies for unusual or catastrophic events
- Creating a new pension program for a business
- Advising on the benefits costs for labor union contract negotiations

The Society of Actuaries (SOA) is the professional organization for life actuaries and The Casualty Actuary Society (CAS) is the professional organization for casualty and property actuaries. Actuaries work in many capacities within insurance companies, consulting and accounting firms, private corporations, government agencies, and colleges and universities. They hold positions in general management, investments, research, long-range planning and accounting, marketing and underwriting.

Both life and casualty actuaries must pass a series of exams to achieve Associateship and then Fellowship in their respective society. The following exams can be applied toward credit for Associateship in both societies, SOA and CAS:

Exam 1: Mathematical Foundations of Actuarial Science

Exam 2: Interest Theory, Economics and Finance

Preparation for Exam 1: M261, ST420, ST430

Preparation for Exam 2: ECCC 202, ECCC 204, BF311, BF300

Students should have passed one or more exams by time of graduation, or shortly thereafter. Otherwise the chances for getting a starting actuary position might be diminished. Most insurance and consulting companies provide their employees with study time, study materials, and exam preparation courses. Many employers reward successful exam performance with a pay increase or bonus.

As active participants in the business and financial community, actuaries use many different skills on the job. They need analytical, financial, mathematical, and quantitative skills to solve certain business problems, while leadership abilities are a key to attaining top management positions. Communication skills are also important to the successful actuaries, since their work requires close interaction with both technical and non-technical people.

Actuaries must look at the overall picture, use hindsight and foresight as a guide before making a business decision. A degree in actuarial science, economics, mathematics, finance or statistics is considered good preparation for a career as an actuary. Courses in accounting, marketing, computer science, foreign languages, business writing, social sciences and speech are highly recommended.